

PIBS 2897

94-02-11 11:09 AMH

DRINKING WATER SURVEILLANCE PROGRAM

**COBOURG
WATER TREATMENT
PLANT**

REPORT FOR 1991 AND 1992



ISSN 1195-1214

**COBOURG WATER TREATMENT PLANT
DRINKING WATER SURVEILLANCE PROGRAM
REPORT FOR 1991 AND 1992**

MARCH 1994



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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

COBOURG WATER TREATMENT PLANT 1991 AND 1992 REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to include all municipal supplies in Ontario. In 1991, 96 supplies and in 1992, 109 supplies were being monitored.

The Cobourg water treatment plant is a conventional treatment plant which treats water from Lake Ontario. The process consists of coagulation, flocculation, clarification (upflow clarifier), filtration, and disinfection. This plant has a design capacity of $36.3 \times 1000 \text{ m}^3/\text{day}$. The Cobourg water treatment plant serves a population of approximately 15,000.

Water at the plant and at one location in the distribution system was sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polycyclic aromatic hydrocarbons and volatiles) and radiological (radionuclides). Most laboratory analyses were conducted at the Ministry of the Environment and Energy facilities in Rexdale, Ontario. Radionuclides were analyzed by the Ministry of Labour.

Table A is a summary of all results by group.

No known health related guidelines were exceeded.

The Cobourg water treatment plant, for the sample years 1991 and 1992, produced good quality water and this was maintained in the distribution system.

TABLE A
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

SUMMARY TABLE BY SCAN

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '-' INDICATES THAT NO SAMPLE WAS TAKEN

SITE	SCAN	RAW TESTS	POSITIVE	%POSITIVE	TREATED TESTS	POSITIVE	%POSITIVE	SHIRLEY ST TESTS	POSITIVE	%POSITIVE	TOTAL TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL		39	25	64	13	5	38	12	4	33			
CHEMISTRY (FIELD)		40	40	100	84	82	97	66	63	95			
CHEMISTRY (LABORATORY)		328	272	82	336	242	72	442	373	84			
METALS		336	102	30	335	96	28	506	202	39			
CHLORAROMATICS		154	0	0	140	0	0	126	0	0			
CHLOROPHENOLS		6	0	0	6	0	0	-	-	-			
PESTICIDES AND PCB		358	0	0	336	0	0	198	0	0			
PHENOLICS		14	1	7	14	1	7	-	-	-			
POLYAROMATIC HYDROCARBONS		51	0	0	34	0	0	34	0	0			
SPECIFIC PESTICIDES		26	0	0	26	0	0	-	-	-			
VOLATILES		420	0	0	420	56	13	358	48	13			
RADIIONUCLIDES		7	1	14	7	2	28	-	-	-			
TOTAL		1,779	441	24.4%	1,751	484	27.4%	1,742	690	39.7%			

DRINKING WATER SURVEILLANCE PROGRAM

COBOURG WATER TREATMENT PLANT 1991 AND 1992 REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to include all municipal supplies in Ontario. In 1991, 96 supplies and in 1992, 109 supplies were being monitored.

Appendix A has a full description of the DWSP.

The DWSP was initiated at the Cobourg water treatment plant in June, 1991. This is the first published report for the combined years of 1991 and 1992.

PLANT DESCRIPTION

The Cobourg water treatment plant is a conventional treatment plant which treats water from Lake Ontario. The process consists of coagulation, flocculation, clarification (upflow clarifier), filtration, and disinfection. This plant has a design capacity of $36.3 \times 1000 \text{ m}^3/\text{day}$. The Cobourg water treatment plant serves a population of approximately 15,000.

The sample day flows ranged from $10.5 \times 1000 \text{ m}^3/\text{day}$ to $17.9 \times 1000 \text{ m}^3/\text{day}$.

General plant information is presented in Table 1 and a schematic of plant processes, chemical addition points and sampling locations in Figure 1.

SAMPLING AND ANALYSES

Stringent DWSP sampling protocols were followed to ensure that all samples were collected in a uniform manner (see Appendix B).

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. Retention time was calculated by dividing the volume of water between two sampling points by sample day flow. For example, if it

was determined that retention time within the plant was five hours, then there would be a five hour interval between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

To obtain a representative raw water sample, free from any added chemicals, at plants which used chlorine for zebra mussel control, the operator was required to turn off the chlorine feed to the mouth of the intake and allow enough time for the chlorinated water to clear from the intake works.

Plant operating personnel routinely analyzed parameters for process control (Table 2).

At all distribution system locations, two types of samples were obtained, a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples were used to make an assessment of the change in the levels of inorganic compounds and metals due to leaching from, or deposition on, the plumbing system. The only analyses carried out on the standing samples, therefore, were laboratory chemistry and metals. The free flow sample represented fresh water from the distribution system main, since the sample tap was flushed for five minutes prior to sampling.

Water at the plant and at one location in the distribution system was sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons and volatiles) and radiological (radionuclides). Most laboratory analyses were conducted at the Ministry of the Environment and Energy facilities in Rexdale, Ontario. Radionuclides were analyzed by the Ministry of Labour.

RESULTS

Field measurements were recorded on the day of sampling and were entered onto the DWSP database as submitted by plant personnel.

Table 3 contains information on delay time between the raw and treated water sampling, flow rate, and treatment chemicals dosages.

Table 4 is a summary of all results by parameter and by water type. If a parameter was not detected, the total number of negative sample results is given. In contrast, if a parameter was detected at any location, the detailed results for all samples are provided.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment and Energy laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 lists all parameters analyzed in the DWSP.

Associated guidelines and detection limits are also supplied on Tables 4 and 5. Parameters are listed alphabetically within each scan.

DISCUSSION

GENERAL

Water quality was judged by comparison with the Ontario Drinking Water Objectives publication (ODWOs). When an Ontario Drinking Water Objective (ODWO) was not available, guidelines/limits from other agencies were used. These guidelines were obtained from the Parameter Listing System database.

The guidelines are evaluated on the results from the free flowing samples. Standing samples in the distribution system can show elevated concentrations in certain metals if the water is corrosive or if the standing time is excessive. Flushing the tap until the water achieves the coolest temperature will ensure that the water used for consumption will contain minimum concentrations of metals.

IN THIS REPORT, DISCUSSION IS LIMITED TO:

- THE TREATED AND DISTRIBUTED WATER;**
- ONLY THOSE PARAMETERS WITH CONCENTRATIONS ABOVE
GUIDELINE VALUES; AND**
- POSITIVE ORGANIC PARAMETERS DETECTED.**

BACTERIOLOGICAL

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality. Routine monitoring programs usually require that multiple samples be collected in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Standard plate count was the only bacteriological analysis conducted on the treated and distributed water. No results were above the guideline.

INORGANIC & PHYSICAL

CHEMISTRY (FIELD)

It is desirable that the temperature of drinking water be less than 15°C. The palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of delivered water may increase in the distribution system due to the warming effect of soil in late summer and fall and/or as a result of higher temperatures in the source water.

Field temperature exceeded the ODWO Aesthetic Objective of 15°C in 3 of 18 treated and distributed water samples with a maximum reported value of 17.5°C.

CHEMISTRY (LABORATORY)

The ODWOS indicate that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters provides an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and possess a tendency to form scale deposits and result in excessive soap consumption.

Hardness exceeded the ODWO Recommended Operational Guideline of 80-100 mg/L in all 25 treated and distributed water samples with a maximum reported value of 138.4 mg/L.

METALS

At present, there is no evidence that aluminum is physiologically harmful and no health limit for drinking water has been specified. The measure of aluminum in treated water is important to measure the efficiency of the treatment process. The ODWOS indicate that a useful guideline is to maintain a residual below 100 ug/L as aluminum in the water leaving the plant to avoid problems in the distribution system.

Aluminum exceeded the ODWO Recommended Operational Guideline of 100 ug/L in 2 of 26 treated and distributed water samples with a maximum reported value of 140 ug/L.

The presence of elevated lead in the standing samples in the distribution system indicates that household taps should be flushed, until the coolest water temperature is obtained, before water is used for consumption. The concentration of lead and other metals can increase while the water is standing in the service line and home plumbing. The health related ODWO for lead is applied to the free flowing sample.

ORGANIC

CHLOROAROMATICS

The results of the chloroaromatic scan showed that none were detected above trace levels.

CHLOROPHENOLS

The results of the chlorophenol scan showed that none were detected.

PESTICIDES AND PCB

The results of the pesticide and PCB scan showed that none were detected above trace levels.

PHENOLICS

Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes. The ODWOS have been revised to replace the aesthetic phenolic objective with objectives for specific phenols.

Phenolics were found at a positive level in 1 of the 14 treated and distributed water samples analyzed. The maximum observed level was 1.4 ug/L.

POLYAROMATIC HYDROCARBONS

The results of the polyaromatic hydrocarbon scan showed that none were detected.

SPECIFIC PESTICIDES

The results of the specific pesticide scan showed that none were detected.

VOLATILES

The detection of benzene, ethylbenzene, toluene and xylenes at low, trace levels may be a laboratory artifact derived from the analytical methodology. Trace levels of styrene are considered to be laboratory artifacts resulting from the sample shipping containers.

Trihalomethanes (THMs) are produced during the water treatment process and will always occur in chlorinated waters. THMs are comprised of chloroform, chlorodibromomethane and dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs. Only total THM results are discussed. Starting in 1991, samples

from the distribution system were quenched with sodium thiosulphate to stop the further production of THMs in the sample bottle. This provided a more representative estimation of the THMs consumed in tap water.

Total trihalomethanes were found at positive levels in all 26 treated and distributed water samples analyzed. The maximum observed level was 29.4 ug/L. This was below the ODWO Maximum Acceptable Concentration of 350 ug/L.

RADIOLOGICAL

RADIONUCLIDES

There are more than 200 radionuclides, some of which occur naturally and others which originate from the activities of society. The radionuclides currently of greater interest from a health view-point are tritium, strontium-90, iodine-131, cesium-137 and radium-226. The gross beta and gross alpha determinations are suitable for preliminary screening except for tritium which must be measured separately. Radionuclides are measured in becquerels per litre (Bq/L). No results were above the available guidelines.

CONCLUSIONS

No known health related guidelines were exceeded.

The Cobourg water treatment plant, for the sample years 1991 and 1992, produced good quality water and this was maintained in the distribution system.

FIGURE 1
COBOURG WATER TREATMENT PLANT

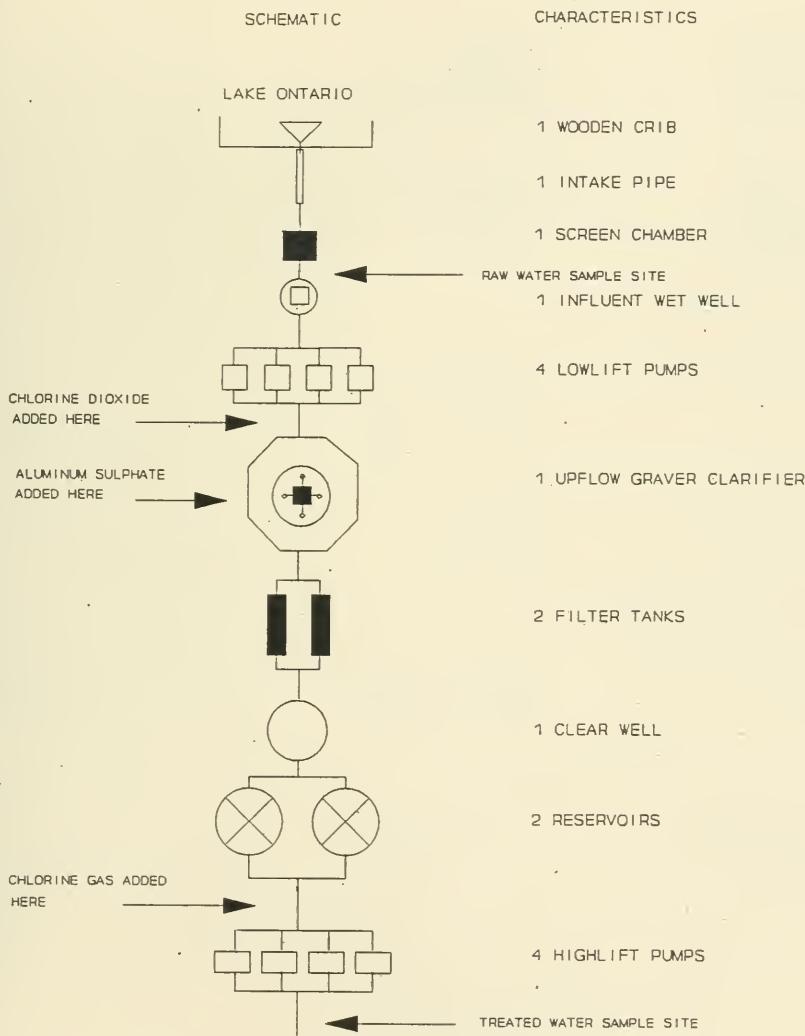


TABLE 1
DRINKING WATER SURVEILLANCE PROGRAM
PLANT GENERAL REPORT

PLANT NAME: COBOURG WTP
WORKS #: 220000825
UTM #: 177285954870450

DISTRICT: PETERBOROUGH
REGION: CENTRAL
DISTRICT OFFICER: J. BOURQUE

SUPERINTENDENT: C. ROSS

ADDRESS: 6 DARCY ST.
COBOURG, ONTARIO
416-372-3612

MUNICIPALITY: COBOURG
AUTHORITY: MUNICIPAL

PLANT INFORMATION

PLANT VOLUME: 7.710 (X 1000 M3)
DESIGN CAPACITY: 36.370 (X 1000 M3/DAY)
RATED CAPACITY: - (X 1000 M3/DAY)

MUNICIPALITY	POPULATION
COBOURG	15,000

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM
IN-PLANT MONITORING

PARAMETER	LOCATION	FREQUENCY
TOTAL CHLORINE RESIDUAL	LAB TREATED TREATED	EVERY 3 DAYS CONTINUOUS
PH	LAB RAW LAB SETTLED LAB FILTERED	VARIABLE VARIABLE VARIABLE
TURBIDITY	LAB RAW LAB SETTLED LAB FILTERED CLARIFIER FILTERED	WEEKLY WEEKLY WEEKLY CONTINUOUS CONTINUOUS

TABLE 3
DRINKING WATER SURVEILLANCE PROGRAM COBURG WTP SAMPLE DAY CONDITIONS
AND TREATMENT CHEMICAL DOSAGES FOR 1991 AND 1992

DATE	DELAY *	FLOW (1000M ³)	TIME (HRS)	PRE CHLORINATION	COAGULATION	POST CHLORINATION
				CHLORINE	ALUM LIQUID	CHLORINE
91 JUN 17	.00	12,040	-	-	36.00	.52
91 AUG 06	3.00	17,921	-	-	23.90	.56
91 SEP 30	.25	13,870	-	-	13.90	1.30
91 OCT 22	.25	12,125	-	-	9.00	1.10
91 NOV 19	24.00	12,992	-	-	15.40	1.00
92 JAN 21	1.20	13,872	1.40	-	24.40	1.40
92 FEB 18	1.30	14,442	1.03	-	24.07	1.03
92 MAR 16	1.30	13,630	.80	-	19.30	1.20
92 MAY 20	1.30	16,035	.84	-	37.90	.84
92 JUN 15	.00	-	-	-	32.90	1.30
92 SEP 22	1.50	12,620	.70	-	39.60	1.00
92 NOV 23	1.50	10,550	-	-	30.20	-

* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME.

KEY TO TABLE 4 and 5

- A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
 - 1. Maximum Acceptable Concentration (MAC)
 - 1+. MAC for Total Trihalomethanes
 - 2. Interim Maximum Acceptable Concentration (IMAC)
 - 3. Aesthetic Objective (AO)
 - 3*. AO for Total Xylenes
 - 4. Recommended Operational Guideline
 - 5. Health Related Guidance Value

- B HEALTH & WELFARE CANADA (H&W)
 - 1. Maximum Acceptable Concentration (MAC)
 - 2. Proposed MAC
 - 3. Interim MAC
 - 4. Aesthetic Objective (AO)

- C WORLD HEALTH ORGANIZATION (WHO)
 - 1. Guideline Value (GV)
 - 2. Tentative GV
 - 3. Aesthetic GV

- D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
 - 1. Maximum Contaminant Level (MCL)
 - 2. Suggested No-Adverse Effect Level (SNAEL)
 - 3. Lifetime Health Advisory
 - 4. EPA Ambient Water Quality Criteria

- F EUROPEAN ECONOMIC COMMUNITY (EEC)
 - 1. Health Related Guideline Level
 - 2. Aesthetic Guideline Level
 - 3. Maximum Admissible Concentration (MADC)

- G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

- I NEW YORK STATE AMBIENT WATER GUIDELINE

- N/A NONE AVAILABLE

LABORATORY RESULTS, REMARK DESCRIPTIONS

No Sample Taken
BDL Below Minimum Measurement Amount
<T Greater Than Detection Limit But Not Confident
(SEE INTERPRETATION OF RESULTS ABOVE)
> Results Are Greater Than The Upper Limit
<=> Approximate Result
!48 No Data: Sample Age Exceeded 48 Hours
!AR No Data: No Numeric Results
!AW No Data: Analysis Withdrawn
!BT No Data: Sample Broken In Transit
!CS No Data: Contamination Suspected
!EF No Data: Laboratory Equipment Failure
!IR No Data: Insufficient Sample
!IS No Data: Insufficient Sample
!LA No Data: Laboratory Accident
!NP No Data: No Procedure
!NR No Data: Sample Not Received
!OP No Data: Obscured Plate
!PE No Data: Procedure Error: Sample Discarded
!PR No Data: Preservative Required
!QU No Data: Quality Control Unacceptable
!RE No Data: Received Empty
!RO No Data: No Numeric Results
!SM No Data: Sample Missing
!SS No Data: Sample Improperly Preserved
!U No Data: Sample Unsuitable For Analysis
!UB No Data: Bottle Broken
!UN No Data: Result Unreliable

!UR	No Data: Unpreserved Sample Required
A	Approximate Value
A3C	Approximate, Total Count Exceeded 300 Colonies
A>	Approximate Value, Exceeded Normal Range
APS	Additional Peak, Less Than, Not Priority Pollutant
ARO	Additional Information In Laboratory Report
CRO	Calculated Result Only
NAF	Not All Required Tests Found
RID	Ioncal Calculated on Incomplete Data Set
RMP	P and M-Xylene Not Separated
RRR	Result Obtained by Repeat Analysis
RRV	Rerun Verification
SFA	Sample Filtered: Filtrate Analyzed
SIL	Sample Incorrectly Labelled
SPS	Several Peaks, Small, Not Priority Pollutant
U48	Unreliable: Sample Age Exceeded 48 Hours
UAL	Unreliable: Sample Age Exceeded Limit
UAU	Unreliable: Sample Age Unknown
UCS	Unreliable: Contamination Suspected
WSD	Wrong Sample Description On Bottle

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	PLANT FREE FLOW	BACTERIOLOGICAL		DET'N LIMIT = 0	GUIDELINE = 0 (A1)
			DIST. SYSTEM SHIRLEY ST	DIST. SYSTEM SHIRLEY ST STANDING		
FECAL COLIFORM MF (CFT/100ML)						
1991 JUN	BDL					
1991 JUL	0					
1991 AUG	4					
1991 SEP	BDL					
1991 OCT	1					
1991 NOV	1					
1992 JAN	5					
1992 FEB	0					
1992 MAR	0					
1992 APR	0					
1992 MAY	0					
1992 SEP.	3					
1992 NOV	0					
STANDARD PLATE CNT MF (CFT/ML)					DET'N LIMIT = 0	GUIDELINE = 500 (A3)
1991 JUN			1 <=>		4 <=>	
1991 JUL			8 <=>		3 <=>	
1991 AUG			3 <=>		5 <=>	
1991 SEP			5 <=>		1 <=>	
1991 OCT			0 <=>		20	
1991 NOV			10		9 <=>	
1992 JAN			13		2 <=>	
1992 FEB			17		21	
1992 MAR			5 <=>		5 <=>	
1992 APR			5 <=>		10	
1992 MAY			14			
1992 SEP			230		65	
1992 NOV			5 <=>		1 <=>	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (FIELD) (MG/L)	DIST. SYSTEM SHIRLEY ST FREE FLOW		GUIDELINE = N/A
			DET/N LIMIT = 0		
FLD CHLORINE (COMB) (MG/L)					
1991 JUN		.200	.000		
1991 JUL		.500			.000
1991 AUG		.300			.020
1991 SEP		.200	.100		
1991 OCT		.200	.200		
1991 NOV		.200			.000
1992 JAN		.200			.000
1992 FEB		.100			.200
1992 MAR		.200			.010
1992 APR		.100			.200
1992 MAY		.000			
1992 JUN		.300			
1992 JUL		.100			
1992 SEP		.100			
1992 NOV		.200			.100
FLD CHLORINE FREE (MG/L)					
1991 JUN		.200	.200		
1991 JUL		.000			
1991 AUG		.200			
1991 SEP		.400	.200		
1991 OCT		.400	.100		
1991 NOV		.600			.200
1992 JAN		.400			
1992 FEB		.500			.020
1992 MAR		.420			.200
1992 APR		.500			
1992 MAY		.600			
1992 JUN		.300			
1992 SEP		.400	.100		
1992 NOV		.400			.100

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT RAW	TREATMENT PLANT TREATED	CHEMISTRY (FIELD)	FLD CHLORINE (TOTAL) (MG/L)	DET'N LIMIT = 0		GUIDELINE = N/A
				DIST. SYSTEM SHIRLEY ST	DIST. SYSTEM FREE FLOW	
1991 JUN			.400	.200		
1991 JUL			.500			.200
1991 AUG			.500			.030
1991 SEP			.600			.300
1991 OCT			.600			.300
1991 NOV			.800			.200
1992 JAN			.600			.400
1992 FEB			.600			.030
1992 MAR			.620			.400
1992 APR			.600			
1992 MAY			.600			
1992 JUN			.500			
1992 SEP			.600			
1992 NOV						.200

TREATMENT RAW	TREATMENT PLANT TREATED	CHEMISTRY (FIELD)	FLD PH (MHSLESS)	DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5 (A4)
				DIST. SYSTEM SHIRLEY ST	DIST. SYSTEM FREE FLOW	
1991 JUN			7.400	7.200	7.400	
1991 JUL			7.600	7.400		
1991 AUG			7.500	7.200		
1991 SEP			7.400	7.200	7.200	
1991 OCT			7.400	7.400	7.400	
1991 NOV			7.500	7.200		
1992 JAN			7.400	7.200		
1992 FEB			7.400	7.200		
1992 MAR			7.400	7.200		
1992 APR			7.700	7.100		
1992 MAY			7.600	7.000		
1992 JUN			7.400	7.000		
1992 SEP			7.600	7.000	7.200	
1992 NOV			7.600	7.300		7.400

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT RAW	TREATMENT PLANT TREATED	PLANT FREE FLOW	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	CHEMISTRY (FIELD)		DETIN LIMIT = N/A	GUIDELINE = 15 (A3)
					FLD TEMPERATURE (DEG. C)	FLD TURBIDITY (FTU)		
1991 JUN	1,500	4,000	16,000	11,000				
1991 JUL	6,000	10,000		14,000				
1991 AUG	10,000	13,000						
1991 SEP	7,000	10,000	15,000					
1991 OCT	10,000	12,500	17,500					
1991 NOV		5,000		7,000				
1992 JAN	3,000	3,000		2,500				
1992 FEB	2,000	3,000		3,200				
1992 MAR	2,000	2,000		3,000				
1992 APR	4,000	5,000						
1992 MAY	8,000	8,000						
1992 JUN		10,000						
1992 JUL	15,000	15,000	16,500					
1992 SEP	9,000	9,000		14,000				
1992 NOV								

FLD TURBIDITY (FTU)								
1991 JUN	1,600	.220	.250					
1991 JUL	2,000	.450						
1991 AUG	1,000	.280						
1991 SEP	1,600	.200	.240					
1991 OCT	1,200	.350	.400					
1991 NOV	2,400	.280						
1992 JAN	3,000	.170						
1992 FEB	.750	.220						
1992 MAR	2,100	.180						
1992 APR	1,200	.250						
1992 MAY	2,700	.350						
1992 JUN	1,300	.250						
1992 SEP	1,000	.290	.380					
1992 NOV	2,500	.150		.350				

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM		DIST. SYSTEM	
		SHIRLEY ST FREE FLOW	SHIRLEY ST STANDING	SHIRLEY ST FREE FLOW	SHIRLEY ST STANDING

ALKALINITY (MG/L) CHEMISTRY (LABORATORY)

	1991 JUN	102,500	96,300	96,400	96,200
1991 JUL	102,600	95,100	95,800	96,200	96,200
1991 AUG	102,100	97,100	97,700	97,300	97,300
1991 SEP	101,000	93,800	94,900	94,900	94,900
1991 OCT	97,300	93,800	93,000	93,100	93,100
1991 NOV	100,000	94,500	94,500	94,500	94,500
1992 JAN	97,500	92,000	92,900	92,400	92,400
1992 FEB	95,600	92,300	94,900	93,600	93,600
1992 MAR	99,900	93,400	94,700	94,400	94,400
1992 APR	99,500	91,200	87,500	88,700	88,700
1992 MAY	99,900	87,300	87,500	88,700	88,700
1992 JUN	102,100	92,200	90,600	89,600	89,600
1992 SEP	99,600	86,400	91,600	93,100	93,100
1992 NOV	100,300				

CALCIUM (MG/L) CHEMISTRY (LABORATORY)

	1991 JUN	38,600	40,000	39,400	39,400
1991 JUL	40,200	39,800	40,600	40,400	40,400
1991 AUG	40,400	40,800	40,200	40,200	40,200
1991 SEP	41,200	41,000	40,700	40,700	40,700
1991 OCT	38,500	37,600	38,600	39,000	39,000
1991 NOV	39,900	40,000	40,100	39,600	39,600
1992 JAN	37,800	38,500	37,000	38,600	38,600
1992 FEB	35,400	35,900	36,500	36,900	36,900
1992 MAR	39,800	40,500	41,000	41,000	41,000
1992 APR	38,950	39,900	39,000	39,600	39,600
1992 MAY	39,000	39,100	39,000	39,600	39,600
1992 JUN	38,800	38,700	39,300	39,500	39,500
1992 SEP	38,200	37,500	39,500	39,850	39,850
1992 NOV	38,250				

CYANIDE (MG/L) CHEMISTRY (LABORATORY)

	20 SAMPLES	BOL	BOL	DET'N LIMIT = 0.001	GUIDELINE = 0.2 (A1)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)	DET'N LIMIT = 0.20		GUIDELINE = 250 (A3)
			DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	
CHLORIDE (MG/L)	CHLORIDE (MG/L)	COLOUR (CHU)	DET'N LIMIT = 0.50	DET'N LIMIT = 0.50	GUIDELINE = 5 (A3)
1991 JUN	21,300	1991 JUN	23,000	23,000	23,000
1991 JUL	22,000	1991 JUL	22,800	23,000	23,000
1991 AUG	22,900	1991 AUG	23,800	24,000	24,000
1991 SEP	21,700	1991 SEP	22,600	22,500	22,700
1991 OCT	22,100	1991 OCT	23,200	22,900	23,200
1991 NOV	22,200	1991 NOV	23,100	22,900	23,500
1992 JAN	22,700	1992 JAN	23,600	23,300	22,800
1992 FEB	21,900	1992 FEB	23,000	23,000	23,100
1992 MAR	21,800	1992 MAR	23,000	23,000	22,600
1992 APR	21,800	1992 APR	22,800	22,800	22,600
1992 MAY	22,600	1992 MAY	22,600	22,500	22,600
1992 JUN	21,900	1992 JUN	22,800	22,700	22,600
1992 JUL	21,400	1992 JUL	23,000	23,000	23,600
1992 AUG	21,400	1992 AUG	23,000	23,000	23,600
1992 SEP	21,400	1992 SEP	23,000	23,000	23,600
1992 NOV	21,400	1992 NOV	23,000	23,000	23,600

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)	DET'N LIMIT = 1.0		GUIDELINE = 400 (F2)
			DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	
CONDUCTIVITY (µMHO/CM)					
1991 JUN	321	325	325	326	327
1991 JUL	320	325	321	322	321
1991 AUG	320	321	323	325	
1991 SEP	319	323	314	313	313
1991 OCT	315	318	318	318	319
1991 NOV	315	333	333	332	333
1992 JAN	327	328	328	328	331
1992 FEB	324	324	324	328	327
1992 MAR	316	318	318	318	
1992 APR	311	318	318	318	320
1992 MAY	311	318	329	319	
1992 JUN	321	316	316	319	319
1992 SEP	309	323	323	326	
1992 NOV	314				
DISS ORG CARBON (MG/L)					
1991 JUN	1.800	1.500	1.300		
1991 JUL	1.800	1.600	1.700	1.700	1.600
1991 AUG	1.800	1.700	1.700		
1991 SEP	1.600	1.300	1.600		
1991 OCT	1.800	1.900	1.800	1.800	1.700
1991 NOV	1.800	1.700	1.700	1.700	1.600
1992 JAN	2.000	1.500	1.500	1.500	1.500
1992 FEB	1.600	1.400	1.200	1.200	1.400
1992 MAR	2.100	1.500	1.400	1.400	1.600
1992 APR	2.000	1.200	1.300	1.300	1.300
1992 MAY	2.100	1.200	1.300	1.300	
1992 JUN	1.600	1.300	1.500	1.300	1.400
1992 SEP	2.000	1.500	1.400	1.400	
1992 NOV	1.900	1.400			

GUIDELINE = 5.0 (A3)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

FLUORIDE (MG/L)	CHEMISTRY (LABORATORY)												GUIDELINE = 1.5 (A1)				
	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DET. SYSTEM SHIRLEY ST FREE FLOW	DET. SYSTEM SHIRLEY ST STANDING	DET'N LIMIT = 0.01												
1991 JUN	.100		.100		.100												
1991 JUL	.120		.120		.120												
1991 AUG	.120		.120		.100												
1991 SEP	.120		.100		.120												
1991 OCT	.120		.120		.080												
1991 NOV	.120		.120		.120												
1992 JAN	.140		.120		.120												
1992 FEB	.120		.100		.100												
1992 MAR	.120		.120		.120												
1992 APR	.140		.120		.120												
1992 MAY	.120		.100		.100												
1992 JUN	.140		.120		.120												
1992 SEP	.140		.120		.100												
1992 NOV	.100		.080		.080												
HARDNESS (MG/L)														GUIDELINE = 80-100 (A4)			
1991 JUN	151.000		135.000		133.000												
1991 JUL	135.000		135.000		135.000												
1991 AUG	134.000		134.000		134.000												
1991 SEP	138.000		138.400		137.600												
1991 OCT	131.300		131.300		129.700												
1991 NOV	134.700		133.500		134.400												
1992 JAN	129.400		132.100		127.700												
1992 FEB	123.000		125.000		126.000												
1992 MAR	135.000		137.000		138.000												
1992 APR	132.100		134.400		134.000												
1992 MAY	132.000		133.000		132.000												
1992 JUN	132.000		132.000		129.520												
1992 SEP	131.000		133.290		133.290												
1992 NOV	130.300																

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)		DET/N LIMIT = N/A	GUIDELINE = N/A
		DIST. SYSTEM SHIRLEY ST STANDING FREE FLOW	DIST. SYSTEM SHIRLEY ST FREE FLOW		
IONICAL (OMNIBLUE)					
1991 JUN	1.850 NAF	1.408 NAF	.288		
1991 JUL	.207 NAF	.885 NAF	1.972 NAF	1.689 NAF	2.968
1991 AUG	1.798	1.298	2.999		
1991 SEP	1.440 NAF	1.484 NAF	1.449 NAF		
1991 OCT	1.883	2.233	.585 NAF	.487 NAF	
1991 NOV	.098	.105	.714	1.820	
1992 JAN	1.775	1.706	3.343	1.081	
1992 FEB	4.009	4.127	4.669	3.684	
1992 MAR	3.123	2.691	2.678	2.683	
1992 APR	.968	1.309			
1992 MAY	.054	1.837	1.735	.923	
1992 JUN	.740 NAF	.892 NAF			
1992 SEP	.650	.075	.909	1.410	
1992 NOV	1.555	.859	.000 NAF	1.946	
POTASSIUM (MG/L)					
1991 JUN	1.600	1.500	1.550		
1991 JUL	1.450	1.400	1.400	1.400	
1991 AUG	1.500	1.550	1.450	1.500	
1991 SEP	1.380	1.390	1.370		
1991 OCT	1.460	1.460	1.490	1.490	
1991 NOV	1.390	1.410	1.410	1.380	
1992 JAN	1.450	1.450	1.410	1.500	
1992 FEB	1.400	1.480	1.460	1.470	
1992 MAR	1.520	1.560	1.550	1.570	
1992 APR	1.523	1.524			
1992 MAY	1.540	1.530	1.530	1.520	
1992 JUN	1.490	1.640			
1992 SEP	1.520	1.535	1.500	1.510	
1992 NOV	1.499	1.497		1.513	

DET/N LIMIT = 0.01

GUIDELINE = 10 (F2)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	DET'N LIMIT = N/A	GUIDELINE = N/A
LANGEIERS INDEX (OMNSLESS)						
1991 JUN	.474	.422	.306	.126 NAF		
1991 JUL	.472 NAF	.174 NAF	.156 NAF	.126 NAF		
1991 AUG	.322	.134	.191	.189		
1991 SEP	.386	.281	.263			
1991 OCT	.393	.345	.272	.307		
1991 NOV	.358	.094	.205	.180		
1992 JAN	.373	.235	.252	.248		
1992 FEB	.506	.356	.425	.364		
1992 MAR	.537	.294	.355	.314		
1992 APR	.476	.278				
1992 MAY	.498	.040	.090	.122		
1992 JUN	.394	.218				
1992 JUL	.428	.228	.248	.176		
1992 SEP	.431	.125		.136		
MAGNETIUM (MG/L)						
1991 JUN	8.300	8.500	8.600			
1991 JUL	8.400	8.500	8.200	8.300		
1991 AUG	7.900	7.900	7.700	7.800		
1991 SEP	8.550	8.750	8.700			
1991 OCT	8.350	8.650	8.600	8.300		
1991 NOV	8.550	8.200	8.300	8.350		
1992 JAN	8.500	8.750	8.600	8.600		
1992 FEB	8.370	8.620	8.470	8.430		
1992 MAR	8.710	8.680	8.620	8.650		
1992 APR	8.450	8.420				
1992 MAY	8.480	8.480	8.510	8.410		
1992 JUN	8.550	8.540				
1992 SEP	8.600	8.730	8.610	8.610		
1992 NOV	8.440	8.420		8.440		
DET'N LIMIT = 0.1						
GUIDELINE = 30.0 (F2)						

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

SOILUM (MG/L)	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	CHEMISTRY (LABORATORY)		DET'N LIMIT = 0.20	GUIDELINE = 200 (A4)
					AMMONIUM TOTAL (MG/L)	AMMONIUM TOTAL (MG/L)		
1991 JUN	12.400	12.600	12.400	12.400				
1991 JUL	11.800	11.600	11.200	11.400				
1991 AUG	12.000	11.800	12.000	11.800				
1991 SEP	11.200	11.300	11.500	11.800				
1991 OCT	11.900	11.800	12.200	12.000				
1991 NOV	11.500	11.000	11.200	11.300				
1992 JAN	12.200	11.800	12.100	11.800				
1992 FEB	11.500	12.100	12.300	12.200				
1992 MAR	12.700	12.800	12.800	12.700				
1992 APR	12.010	12.010	12.100	12.100				
1992 MAY	12.000	12.100	12.200	12.100				
1992 JUN	11.900	12.100	12.100	12.000				
1992 JUL	12.100	11.990	12.000	12.000				
1992 SEP	11.580	11.620	11.730	11.730				
					DET'N LIMIT = 0.002		GUIDELINE = 0.05 (F2)	
					BDL	BDL		
1991 JUN	.002 <T	.026	.002 <T	.002 <T	.002	.002 <T	.002 <T	
1991 JUL	.008 <T	.008	.002 <T	.002 <T	.004	.004 <T	.004 <T	
1991 AUG	.006 <T	.006	.002 <T	.002 <T	.002	.002 <T	.002 <T	
1991 SEP	.006 <T	.006	.002 <T	.002 <T	.002	.002 <T	.002 <T	
1991 OCT	.006 <T	.006	.002 <T	.002 <T	.002	.002 <T	.002 <T	
1991 NOV	.006 <T	.006	.002 <T	.002 <T	.002	.002 <T	.002 <T	
1992 JAN	.004 <T	.004	.002 <T	.002 <T	.002	.002 <T	.002 <T	
1992 FEB	.004 <T	.004	.002 <T	.002 <T	.002	.002 <T	.002 <T	
1992 MAR	.010	.010	.004 <T	.004 <T	.004	.004 <T	.004 <T	
1992 APR	.008 <T	.008	.002 <T	.002 <T	.002	.002 <T	.002 <T	
1992 MAY	.032	.006 <T	.006	.006	.006	.006	.006	
1992 JUN	.008 <T	.008	.002 <T	.002 <T	.008	.008	.008	
1992 SEP	.008 <T	.008	.002 <T	.002 <T	.008	.008	.008	
1992 NOV	.008 <T	.008	.002 <T	.002 <T	.012	.012	.012	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT RAW	TREATMENT TREATED	TREATMENT PLANT DIST. SYSTEM SHIRLEY ST FREE FLOW	CHEMISTRY (LABORATORY)	DETIN LIMIT = 0.001		GUIDELINE = 1.0 (A1)	
				DETIN	DETIN		
1991 JUN	.003 <T	BDL	BDL	BDL	BDL		
1991 JUL	.003 <T	BDL	BDL	.001 <T	.001 <T		
1991 AUG	.006	BDL	BDL	BDL	BDL		
1991 SEP	.001 <T	BDL	BDL	BDL	BDL		
1991 OCT	.003 <T	.001 <T	.001 <T	.002 <T	.002 <T		
1991 NOV	BDL	BDL	BDL	BDL	BDL		
1992 JAN	.001 <T	BDL	BDL	BDL	BDL		
1992 FEB	.002 <T	BDL	BDL	BDL	BDL		
1992 MAR	.003 <T	.001 <T	.001 <T	.001 <T	.001 <T		
1992 APR	.006	.004 <T	.004 <T	.004 <T	.004 <T		
1992 MAY	.004 <T	.001 <T	.001 <T	.001 <T	.001 <T		
1992 JUN	.001 <T	BDL	BDL	.001 <T	.001 <T		
1992 SEP	.008	BDL	BDL	.001 <T	.001 <T		
1992 NOV	.004 <T	BDL	BDL	.002 <T	.002 <T		
NITRATE (TOTAL) (MG/L)				DETIN LIMIT = 0.005		GUIDELINE = 10.0 (A1)	
1991 JUN	.350	.360	.350	.350	.350		
1991 JUL	.330	.305	.330	.330	.330		
1991 AUG	.360	.330	.300	.300	.305		
1991 SEP	.400	.405	.405	.405	.405		
1991 OCT	.305	.250	.235	.235	.240		
1991 NOV	.370	.375	.375	.375	.375		
1992 JAN	.395	.390	.390	.390	.390		
1992 FEB	.375	.395	.395	.395	.395		
1992 MAR	.390	.385	.370	.370	.375		
1992 APR	.335	.345	.315	.320	.315		
1992 MAY	.305	.330	.330	.320	.315		
1992 JUN	.335	.285	.285	.280	.315		
1992 SEP	.255	.305	.305	.305	.300		
1992 NOV	.290						

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	TREATMENT PLANT DIST. SYSTEM SHIRLEY ST. FREE FLOW	DIST. SYSTEM SHIRLEY ST. FREE FLOW	DIST. SYSTEM SHIRLEY ST. STANDING	DET'N LIMIT = 0.02 GUIDELINE = N/A
CHEMISTRY (LABORATORY)					
NITROGEN TOT KJELD (MG/L)					
1991 JUN .370		.210	.270		
1991 JUL .250		.180	.220		.200
1991 AUG .220		.200	.170		.180
1991 SEP .160		.130	.130		
1991 OCT .270		.170	.170		.190
1991 NOV .190		.130	.140		.150
1992 JAN .250		.170	.150		.170
1992 FEB .190		.120	.200		.140
1992 MAR .220		.200	.160		.180
1992 APR .220		.150			
1992 MAY .220		.160	.130		.140
1992 JUN .300		.150			
1992 SEP .210		.140	.170		.150
1992 NOV .280		.150			.170
PH (UNLESS)					
PH (UNLESS)					
DET'N LIMIT = N/A GUIDELINE = 6.5-8.5 (A4)					
1991 JUN 8.320		8.280	8.170		
1991 JUL 8.300		8.040	8.010		7.980
1991 AUG 8.150		7.980	8.040		8.040
1991 SEP 8.210		8.140	8.120		
1991 OCT 8.260		8.240	8.160		8.190
1991 NOV 8.200		7.960	8.070		8.050
1992 JAN 8.250		8.150	8.160		8.140
1992 FEB 8.420		8.280	8.330		8.270
1992 MAR 8.380		8.160	8.210		8.170
1992 APR 8.330		8.160			
1992 MAY 8.350		7.950	8.000		8.020
1992 JUN 8.240		8.110			
1992 SEP 8.290		8.160	8.140		8.070
1992 NOV 8.290		8.010			8.010

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	DET'N LIMIT = 0.0005 GUIDELINE = N/A
CHEMISTRY (LABORATORY)					
PHOSPHORUS FIL. REACT (MG/L)					
1991 JUN	.001 <T		BDL		
1991 JUL	.000 <T		.000 <T		
1991 AUG	.000 <T		BDL		
1991 SEP	.000 <T		BDL		
1991 OCT	.000 <T		.000 <T		
1991 NOV	.000 <T		BDL		
1992 JAN	.001 <T		BDL		
1992 FEB	BDL		BDL		
1992 MAR	BDL		BDL		
1992 APR	BDL		BDL		
1992 MAY	BDL		BDL		
1992 JUN	BDL		BDL		
1992 SEP	BDL		BDL		
1992 NOV	.001 <T		BDL		
PHOSPHORUS TOTAL (MG/L)					
1991 JUN	.015		.002 <T		
1991 JUL	.009 <T		.002 <T		
1991 AUG	.004 <T		BDL		
1991 SEP	.005 <T		BDL		
1991 OCT	.012		.005 <T		
1991 NOV	.007 <T		BDL		
1992 JAN	.012		BDL		
1992 FEB	.007 <T		BDL		
1992 MAR	.008 <T		.004 <T		
1992 APR	.002 <T		BDL		
1992 MAY	.007 <T		.002 <T		
1992 JUN	.018		.006 <T		
1992 SEP	.004 <T		BDL		
1992 NOV	.015		.002 <T		
DET'N LIMIT = 0.002 GUIDELINE = 0.40 (F2)					

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING
CHEMISTRY (LABORATORY)			

RESIDUE FILTRATE (MG/L) DET'N LIMIT = N/A GUIDELINE = 500 (A3)

1991 JUN 209,000 CRO 211,000 CRO 211,000 CRO 213,000 CRO
 1991 JUL 208,000 CRO 211,000 CRO 209,000 CRO 212,000 CRO
 1991 AUG 208,000 CRO 210,000 CRO 209,000 CRO 213,000 CRO
 1991 SEP 207,000 CRO 210,000 CRO 211,000 CRO 209,000 CRO
 1991 OCT 205,000 CRO 204,000 CRO 203,000 CRO 205,000 CRO
 1991 NOV 205,000 CRO 207,000 CRO 207,000 CRO 207,000 CRO
 1992 JAN 213,000 CRO 216,000 CRO 216,000 CRO 216,000 CRO
 1992 FEB 213,000 CRO 213,000 CRO 213,000 CRO 215,000 CRO
 1992 MAR 205,000 CRO 211,000 CRO 213,000 CRO 213,000 CRO
 1992 APR 202,000 CRO 207,000 CRO 207,000 CRO 208,000 CRO
 1992 MAY 202,000 CRO 207,000 CRO 207,000 CRO 208,000 CRO
 1992 JUN 209,000 CRO 214,000 CRO 214,000 CRO 207,000 CRO
 1992 SEP 201,000 CRO 205,000 CRO 207,000 CRO 207,000 CRO
 1992 NOV 204,000 CRO 210,000 CRO 212,000 CRO

SULPHATE (MG/L) DET'N LIMIT = 0.20 GUIDELINE = 500 (A3)

1991 JUN 26,820 30,600 30,830 33,130
 1991 JUL 26,890 33,050 33,610 33,130
 1991 AUG 27,460 30,980 30,890 31,250
 1991 SEP 27,610 33,760 32,380
 1991 OCT 30,680 31,720 31,770 31,430
 1991 NOV 27,910 31,360 32,080 32,440
 1992 JAN 28,400 34,230 32,550 32,730
 1992 FEB 28,610 32,100 32,140 32,390
 1992 MAR 26,590 33,660 33,400 33,470
 1992 APR 25,990 34,220 36,240 37,010
 1992 MAY 26,410 36,080 36,080 37,010
 1992 JUN 25,830 34,620
 1992 SEP 26,180 36,300 35,030 35,740
 1992 NOV 27,100 35,240 35,240 35,890

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TURBIDITY (FTU)	CHEMISTRY (LABORATORY)			DET'N LIMIT = 0.05	GUIDELINE = 1.0 (A1)
	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW		
1991 JUN	1,400	.110	.060		
1991 JUL	1,000	.130	.150	.210	
1991 AUG	.880	.230	.260	.240	
1991 SEP	.950	.060 <1	.120 <1		
1991 OCT	5,000	.220 <1	.250	.280	
1991 NOV	2,400	.160 <1	.180 <1	.270	
1992 JAN	2,600	.210 <1	.160 <1	.180 <1	
1992 FEB	1,330	.060 <1	.090 <1	.100 <1	
1992 MAR	.940	.240 <1	.150 <1	.200 <1	
1992 APR	1,160	.190 <1			
1992 MAY	2,700	.170 <1	.180 <1	.140 <1	
1992 JUN	1,610	.240 <1			
1992 SEP	1,870	.120 <1	.760	.300	
1992 NOV	5,800	.140 <1		.220 <1	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW		DIST. SYSTEM SHIRLEY ST STANDING	
		DET'N LIMIT = 0.05	GUIDELINE = N/A	DET'N LIMIT = 0.10	GUIDELINE = 100 (A4)
SILVER (UG/L)	)	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL
1991 JUL	BDL	BDL	BDL	BDL	BDL
1991 AUG	BDL	BDL	BDL	BDL	BDL
1991 SEP	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL
1992 JAN	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	0.60 <T
1992 MAR	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL
1992 SEP	BDL	BDL	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	BDL	BDL
ALUMINUM (UG/L))				
1991 JUN	17.000	57.000	49.000	25.000	
1991 JUL	13.000	67.000	59.000		
1991 AUG	7.900	86.000	100.000	90.000	
1991 SEP	19.000	52.000	49.000		
1991 OCT	36.000	140.000	140.000	120.000	
1991 NOV	52.630 <T	79.370 <T	61.000	75.000	
1992 JAN	35.000	43.000	38.000	34.000	
1992 FEB	8.600	39.000	38.000	33.000	
1992 MAR	7.200	33.000	39.000	14.000	
1992 APR	5.300	37.000	34.000	40.000	
1992 MAY	18.000	38.000			
1992 JUN	7.000	31.000			
1992 SEP	9.200	39.000	56.000	45.000	
1992 NOV	31.000	36.000	36.000	34.000	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

METALS	ARSENIC (UG/L)	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DET'N LIMIT = 0.10	GUIDELINE = 25 (A1)	
						DIST. SYSTEM SHIRLEY ST STANDING	DIST. SYSTEM SHIRLEY ST STANDING
1991 JUN	.830 <T			.340 <T	.330 <T	.150 <T	.150 <T
1991 JUL	.610 <T			.170 <T	.150 <T	.460 <T	.460 <T
1991 AUG	.890 <T			.490 <T	.460 <T		
1991 SEP	.910 <T			.400 <T	.310 <T		
1991 OCT	.910 <T			.710 <T	.610 <T	.560 <T	.560 <T
1991 NOV	BDL			.550 <T	.320 <T	.440 <T	.440 <T
1992 JAN	.870 <T			.160 <T	BDL	BDL	BDL
1992 FEB	1.100			.300 <T	.330 <T	.420 <T	.420 <T
1992 MAR	1.000 <T			.310 <T	.160 <T	BDL	BDL
1992 APR	.610 <T			BDL			
1992 MAY	1.300			.590 <T	.670 <T	.900 <T	.900 <T
1992 JUN	.710 <T			BDL			
1992 SEP	.950 <T			.230 <T	.350 <T	.280 <T	.280 <T
1992 NOV	1.100			.280 <T	.400 <T	.510 <T	.510 <T
DET'N LIMIT = 0.05							
GUIDELINE = 1000 (A2)							
1991 JUN	22.000			21.000	20.000		
1991 JUL	22.000			22.000	22.000		
1991 AUG	26.000			23.000	24.000	23.000	24.000
1991 SEP	26.000			22.000	23.000		
1991 OCT	21.000			21.000	20.000	21.000	
1991 NOV	24.740			24.060	21.120	24.950	
1992 JAN	26.000			22.000	22.000	24.000	22.000
1992 FEB	22.000			20.000	20.000	22.000	22.000
1992 MAR	26.000			24.000	24.000	23.000	23.000
1992 APR	22.000			20.000			
1992 MAY	25.000			24.000	23.000	26.000	
1992 JUN	26.000			24.000			
1992 SEP	23.000			23.000	24.000	24.000	
1992 NOV	24.000			22.000	21.000	24.000	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	TREATMENT PLANT FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	DET'N LIMIT = 2.00		GUIDELINE = 5000 (A1)
				BORON (UG/L)	BERILLIUM (UG/L)	
1991 JUN	25.000	24.000	25.000	25.000	25.000	33.000
1991 JUL	29.000	29.000	30.000	30.000	30.000	24.000
1991 AUG	26.000	25.000	24.000	25.000	25.000	24.000
1991 SEP	25.000	25.000	25.000	25.000	25.000	28.000
1991 OCT	28.000	29.000	28.000	29.000	28.000	27.000
1991 NOV	40.330	42.440	26.000	42.440	26.000	27.000
1992 JAN	26.000	26.000	25.000	26.000	25.000	27.000
1992 FEB	26.000	25.000	24.000	25.000	24.000	27.000
1992 MAR	25.000	26.000	27.000	26.000	27.000	37.000
1992 APR	27.000	28.000	28.000	27.000	28.000	27.000
1992 MAY	26.000	26.000	25.000	26.000	25.000	27.000
1992 JUN	23.000	24.000	24.000	23.000	24.000	24.000
1992 SEP	25.000	24.000	25.000	25.000	24.000	24.000
1992 NOV	30.000	30.000	29.000	30.000	30.000	30.000
GUIDELINE = 6800 (A4)						
TREATMENT PLANT RAW	TREATMENT PLANT TREATED	TREATMENT PLANT FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	DET'N LIMIT = 0.05		GUIDELINE = 6800 (A4)
				BERILLIUM (UG/L))	
1991 JUN	BOL	BOL	BOL	BOL	BOL	BOL
1991 JUL	BOL	BOL	BOL	BOL	BOL	BOL
1991 AUG	BOL	BOL	BOL	BOL	BOL	BOL
1991 SEP	BOL	BOL	BOL	BOL	BOL	BOL
1991 OCT	BOL	BOL	BOL	BOL	BOL	BOL
1991 NOV	BOL	BOL	BOL	BOL	BOL	BOL
1992 JAN	BOL	BOL	BOL	BOL	BOL	BOL
1992 FEB	BOL	BOL	BOL	BOL	BOL	BOL
1992 MAR	BOL	BOL	BOL	BOL	BOL	BOL
1992 APR	BOL	BOL	BOL	BOL	BOL	BOL
1992 MAY	BOL	BOL	BOL	BOL	BOL	BOL
1992 JUN	<10	<10	<10	<10	<10	<10
1992 SEP	BOL	BOL	BOL	BOL	BOL	BOL
1992 NOV	BOL	BOL	BOL	BOL	BOL	BOL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

CADMIUM (UG/L)	METALS)	TREATMENT PLANT DIST. SYSTEM TREATED SHIRLEY ST FREE FLOW			GUIDELINE = 5.0 (a1)
		DIST. SYSTEM SHIRLEY ST STANDING	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	
1991 JUN	BDL	BDL	BDL	BDL	
1991 JUL	BDL	BDL	BDL	BDL	
1991 AUG	BDL	BDL	BDL	BDL	
1991 SEP	BDL	BDL	BDL	BDL	
1991 OCT	BDL	BDL	BDL	BDL	
1991 NOV	BDL	BDL	BDL	BDL	
1991 NOV	.060 <T	BDL	BDL	BDL	.060 <T
1992 FEB	BDL	BDL	BDL	BDL	.210 <T
1992 MAR	BDL	BDL	BDL	BDL	
1992 APR	BDL	BDL	BDL	BDL	
1992 MAY	BDL	BDL	BDL	BDL	
1992 JUN	BDL	BDL	BDL	BDL	
1992 SEP	BDL	BDL	BDL	BDL	
1992 NOV	BDL	BDL	BDL	BDL	
DET'N LIMIT = 0.05					
COBALT (UG/L)	METALS)	TREATMENT PLANT DIST. SYSTEM TREATED SHIRLEY ST FREE FLOW			GUIDELINE = N/A
		DIST. SYSTEM SHIRLEY ST STANDING	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	
1991 JUN	.090 <T	.090 <T	.090 <T	.090 <T	
1991 JUL	.080 <T	.070 <T	.060 <T	.060 <T	
1991 AUG	.100 <T	.080 <T	.080 <T	.080 <T	
1991 SEP	.100 <T	.080 <T	.100 <T	.100 <T	
1991 OCT	.180 <T	.140 <T	.100 <T	.120 <T	
1991 NOV	.200 <T	BDL	.140 <T	.170 <T	
1992 JAN	.150 <T	.090 <T	.100 <T	.110 <T	
1992 FEB	.190 <T	.190 <T	.170 <T	.210 <T	
1992 MAR	.170 <T	.250 <T	.170 <T	.100 <T	
1992 APR	.190 <T	.230 <T	.190 <T		
1992 MAY	.240 <T	.260 <T	.270 <T	.780 <T	
1992 JUN	.200 <T	.140 <T			
1992 SEP	.210 <T	.210 <T	.240 <T	.210 <T	
1992 NOV	.220 <T	.150 <T	.130 <T	.190 <T	
DET'N LIMIT = 0.02					

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	DETN LIMIT = 0.50		GUIDELINE = 50.0 (A1)
				METALS)	CHROMIUM (UG/L)	
1991 JUN	2,500 <T	2,100 <T	2,500 <T			
1991 JUL	3,700 <T	3,500 <T	3,600 <T			
1991 AUG	2,000 <T	1,200 <T	1,800 <T			
1991 SEP	.860 <T	.890 <T	.750 <T			
1991 OCT	2,700 <T	2,500 <T	2,300 <T			
1991 NOV	5,900 <T	7,280 <T	.550 <T			
1991 JAN	1,000 <T	1,000 <T	.830 <T			
1992 FEB	.770 <T	.630 <T	BDL			
1992 MAR	.630 <T	.580 <T	.690 <T			
1992 APR	1,400 <T	1,500 <T	1,500 <T			
1992 MAY	.660 <T	.720 <T	.760 <T			
1992 JUN	BDL	.620 <T	.640 <T			
1992 JUL	1,200 <T	.950 <T	.870 <T			
1992 SEP	1,900 <T	2,000 <T	1,800 <T			
1992 NOV	1,900 <T	2,000 <T	1,900 <T			
COPPER (UG/L)						
1991 JUN	1,000 <T	.920 <T	3,500 <T			
1991 JUL	1,000 <T	1,100 <T	3,000 <T			
1991 AUG	1,200 <T	1,200 <T	4,000 <T			
1991 SEP	1,400 <T	.900 <T	3,300 <T			
1991 OCT	1,400 <T	.820 <T	4,200 <T			
1991 NOV	2,130 <T	2,200 <T	2,900 <T			
1992 JAN	1,900 <T	1,100 <T	2,500 <T			
1992 FEB	1,200 <T	1,300 <T	2,700 <T			
1992 MAR	1,000 <T	.760 <T	4,800 <T			
1992 APR	1,100 <T	.870 <T				
1992 MAY	1,400 <T	1,200 <T	4,700 <T			
1992 JUN	1,500 <T	1,000 <T				
1992 SEP	.830 <T	.840 <T	4,800 <T			
1992 NOV	1,100 <T	1,300 <T	3,800 <T			
GUIDELINE = 1000 (A3)						

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBURG WTP

IRON (UG/L)	METALS	TREATMENT PLANT		DIST. SYSTEM		GUIDELINE = 300 (A3)
		TREATED	RAW	SHIRLEY ST	FREE FLOW	
1991 JUN	22,000 <T	BDL	15,000 <T	9,500 <T	21,000 <T	
1991 JUL	20,000 <T	BDL	15,000 <T	9,500 <T	21,000 <T	
1991 AUG	13,000 <T	BDL	26,000 <T	21,000 <T		
1991 SEP	21,000 <T	BDL	13,000 <T			
1991 OCT	45,000 <T	BDL	16,000 <T	18,000 <T		
1991 NOV	40,700 <T	8,520 <T	12,000 <T	9,500 <T		
1992 JAN	50,000 <T	BDL	10,000 <T	8,600 <T		
1992 FEB	16,000 <T	8,000 <T	23,000 <T	26,000 <T		
1992 MAR	13,000 <T	BDL	16,000 <T	BDL		
1992 APR	9,000 <T	BDL				
1992 MAY	28,000 <T	BDL	21,000 <T	44,000 <T		
1992 JUN	8,300 <T	BDL	190,000 <T			
1992 JUL	15,000 <T	BDL	50,000 <T			
1992 AUG	40,000 <T	BDL	220,000 <T			
1992 SEP				50,000 <T		
1992 NOV				41,000 <T		
MERCURY (UG/L)						
1991 JUN	BDL	BDL	BDL	BDL	BDL	GUIDELINE = 1.0 (A1)
1991 JUL	BDL	BDL	BDL	BDL	BDL	
1991 AUG	BDL	BDL	BDL	BDL	BDL	
1991 SEP	BDL	BDL	BDL	BDL	BDL	
1991 OCT	BDL	BDL	BDL	BDL	BDL	
1991 NOV	BDL	BDL	BDL	BDL	BDL	
1992 JAN	BDL	BDL	BDL	BDL	BDL	
1992 FEB	BDL	BDL	BDL	BDL	BDL	
1992 MAR	BDL	BDL	BDL	BDL	BDL	
1992 APR	BDL	BDL	BDL	BDL	BDL	
1992 MAY	BDL	BDL	BDL	BDL	BDL	
1992 JUN	BDL	BDL	BDL	BDL	BDL	
1992 JUL	BDL	BDL	BDL	BDL	BDL	
1992 AUG	BDL	BDL	BDL	BDL	BDL	
1992 SEP	BDL	BDL	BDL	BDL	BDL	
1992 NOV	BDL	BDL	BDL	BDL	BDL	

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT TREATMENT PLANT DIST. SYSTEM
RAW TREATED SHIRLEY ST
FREE FLOW

METALS (UG/L) DET'N LIMIT = 0.05
GUIDELINE = 50.0 (A3)

Manganese (ug/l) 1991 JUN 2,300 .400 <T 1,300
1991 JUL 2,400 .680 2,800 3,300
1991 AUG 1,700 .640 4,200 4,900
1991 SEP 2,000 .360 <T 2,500
1991 OCT 3,400 .440 <T 2,200 3,200
1991 NOV BDL BDL 1,600 .630
1992 JAN 4,500 .290 <T 1,400 2,400
1992 FEB 1,600 .600 2,400 2,800
1992 MAR 1,500 1,100 2,000 .250 <T
1992 APR 1,200 .270 <T
1992 MAY 2,800 .750 1,900 4,700
1992 JUN 2,300 .360 <T
1992 SEP 1,600 .340 <T 17,000 8,600
1992 NOV 3,500 .190 <T 15,000 3,400

MOLYBDENUM (UG/L) DET'N LIMIT = 0.05
GUIDELINE = N/A

Molybdenum (ug/l) 1991 JUN 1,100 1,200 1,100 1,100
1991 JUL 1,100 1,100 1,100 1,300
1991 AUG 1,960 1,100 1,100 1,100
1991 SEP 1,000 1,100 1,100 1,100
1991 OCT 1,000 1,200 1,100 1,100
1991 NOV 1,300 1,200 1,100 1,200
1992 JAN 1,100 1,200 1,300 1,200
1992 FEB 1,100 1,000 1,100 960
1992 MAR 1,100 1,200 1,200 1,400
1992 APR 1,000 1,100 1,200 1,200
1992 MAY 1,200 1,300 1,200 1,200
1992 JUN 1,420 <T 550 1,100 1,100
1992 SEP 1,200 1,300 1,100 .970 1,000
1992 NOV 1,100 1,100

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST. FREE FLOW	DET/N LIMIT = 0.20	GUIDELINE = 350 (03)	
				DIST. SYSTEM SHIRLEY ST. STANDING	DIST. SYSTEM SHIRLEY ST. STANDING
METALS					
NICKEL (UG/L))				
1991 JUN	1.200 <T		.910 <T		.810 <T
1991 JUL	BDL	BDL	BDL	BDL	BDL
1991 AUG	1.200 <T		1.200 <T		1.300 <T
1991 SEP	1.300 <T		1.100 <T		1.300 <T
1991 OCT	1.300 <T		1.200 <T		1.200 <T
1991 NOV	BDL	BDL	BDL	BDL	BDL
1992 JAN	1.000 <T		.670 <T		.600 <T
1992 FEB	2.000 <T		1.800 <T		1.700 <T
1992 MAR	1.900 <T		1.700 <T		1.800 <T
1992 APR	1.800 <T		1.800 <T		1.200 <T
1992 MAY	1.800 <T		1.900 <T		2.300
1992 JUN	.640 <T		.410 <T		3.400
1992 SEP	1.500 <T		1.100 <T		1.300 <T
1992 NOV	.910 <T		.690 <T		1.500 <T
					.990 <T
LEAD (UG/L)					
1991 JUN	.110 <T		.130 <T		.400 <T
1991 JUL	.120 <T		.110 <T		.310 <T
1991 AUG	.090 <T		.070 <T		.470 <T
1991 SEP	.100 <T		.060 <T		.330 <T
1991 OCT	.180 <T		BDL		.460 <T
1991 NOV	.310 <T		.250 <T		.4700
1992 JAN	.240 <T		BDL		.560 <T
1992 FEB	.070 <T		.300 <T		.200 <T
1992 MAR	.080 <T		BDL		.27000
1992 APR	BDL	BDL	BDL	BDL	.420 <T
1992 MAY	.130 <T		.080 <T		.460 <T
1992 JUN	.080 <T		BDL		7.300
1992 SEP	.080 <T		.070 <T		.800
1992 NOV	.150 <T		.090		2.400
					.670
GUIDELINE = 10 (A1)					
DET/N LIMIT = 0.05					

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM		GUIDELINE = 146 (D4)
		SHIRLEY ST FREE FLOW	SHIRLEY ST STANDING	
METALS (UG/L)				
			DET'N LIMIT = 0.05	
ANTHONY (UG/L))			
1991 JUN	.710	.660	.790	
1991 JUL	.710	.760	.690	.790
1991 AUG	.590	.420 <T	.780	.720
1991 SEP	.380	.630	.730	
1991 OCT	.670	.500 <T	.770	.750
1991 NOV	.760	.880	.750	.780
1992 JAN	.760	.540	.550	.680
1992 FEB	.820	.670	.680	.970
1992 MAR	.640	.550	.590	.590
1992 APR	.470 <T	.500 <T		
1992 MAY	.460 <T	.370 <T	.500 <T	.550
1992 JUN	.360 <T	.280 <T		
1992 SEP	.520	.380 <T	.650	1.000
1992 NOV	.530	.550	.670	.780
SELENIUM (UG/L)				
			DET'N LIMIT = 1.00	
				GUIDELINE = 10 (A1)
1991 JUN	BDL	BDL	BDL	
1991 JUL	BDL	BDL	BDL	
1991 AUG	1.100 <T	1.300 <T	1.500 <T	1.300 <T
1991 SEP	BDL	BDL	BDL	
1991 OCT	BDL	BDL	BDL	
1991 NOV	BDL	BDL	BDL	
1992 JAN	BDL	1.100 <T	1.200 <T	1.200 <T
1992 FEB	1.300 <T	BDL	BDL	BDL
1992 MAR	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	1.400 <T
1992 MAY	BDL	BDL	BDL	
1992 JUN	BDL	BDL	BDL	
1992 SEP	BDL	1.300 <T	1.300 <T	BDL
1992 NOV	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DETIN' LIMIT = 0.10	GUIDELINE = N/A	
				METALS)	TITANIUM (UG/L)
1991 JUN	170,000	170,000	170,000	170,000	170,000
1991 JUL	170,000	170,000	170,000	170,000	170,000
1991 AUG	180,000	180,000	180,000	180,000	180,000
1991 SEP	180,000	180,000	180,000	180,000	180,000
1991 OCT	170,000	170,000	170,000	170,000	170,000
1991 NOV	181,790	187,670	180,000	190,000	190,000
1992 JAN	190,000	190,000	180,000	180,000	180,000
1992 FEB	180,000	180,000	200,000	200,000	190,000
1992 MAR	200,000	160,000	160,000	190,000	200,000
1992 APR	160,000	190,000	190,000	190,000	190,000
1992 MAY	190,000	190,000	180,000	180,000	180,000
1992 JUN	190,000	180,000	180,000	180,000	180,000
1992 SEP	180,000	180,000	180,000	180,000	180,000
1992 NOV	180,000	180,000	180,000	180,000	180,000
DETIN' LIMIT = 0.50					
1991 JUN	2,700 <T	1,300 <T	1,300 <T	1,300 <T	BDL
1991 JUL	1,300 <T	BDL	BDL	BDL	BDL
1991 AUG	.600 <T	BDL	BDL	BDL	BDL
1991 SEP	1,700 <T	.530 <T	.700 <T	.640 <T	.720 <T
1991 OCT	2,900 <T	1,390 <T	1,390 <T	.880 <T	.800 <T
1991 NOV	3,970 <T	2,500 <T	1,000 <T	.760 <T	.760 <T
1992 JAN	2,500 <T	1,500 <T	.890 <T	1,100 <T	.990 <T
1992 FEB	1,500 <T	4,000 <T	3,500 <T	3,900 <T	3,500 <T
1992 MAR	4,000 <T	4,000 <T	3,900 <T	3,600 <T	3,500 <T
1992 APR	4,000 <T	4,600 <T	3,600 <T	3,500 <T	3,400 <T
1992 MAY	4,600 <T	2,300 <T	1,900 <T	1,710 <T	1,780 <T
1992 JUN	2,300 <T	1,300 <T	.660 <T	.710 <T	.780 <T
1992 SEP	1,300 <T	2,500 <T	1,000 <T	.990 <T	.870 <T
1992 NOV	2,500 <T	50 SAMPLES	BDL	BDL	BDL
DETIN' LIMIT = 0.05					
GUIDELINE = 13 (D4)					

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM			GUIDELINE = 100 (A1)
		SHIRLEY ST FREE FLOC	SHIRLEY ST STANDING	OIST. SYSTEM	
URANIUM (UG/L)				DET'N LIMIT = 0.05	
1991 JUN	.330 <1	.250 <1	.230 <1		
1991 JUL	.300 <1	.190 <1	.180 <1		.190 <1
1991 AUG	.270 <1	.240 <1	.250 <1		.220 <1
1991 SEP	.320 <1	.190 <1	.190 <1		
1991 OCT	.340 <1	.300 <1	.300 <1		.280 <1
1991 NOV	.410 <1	.310 <1	.630 <1		.070 <1
1992 JAN	.420 <1	.280 <1	.250 <1		.250 <1
1992 FEB	.300 <1	.230 <1	.240 <1		.220 <1
1992 MAR	.360 <1	.200 <1	.240 <1		.290 <1
1992 APR	.350 <1	.150 <1			
1992 MAY	.340 <1	.090 <1	BDL		.100 <1
1992 JUN	.210 <1	.110 <1			
1992 SEP	.300 <1	.070 <1	.090 <1		.090 <1
1992 NOV	.290 <1	.130 <1	.110 <1		.130 <1
VANADIUM (UG/L)				DET'N LIMIT = 0.05	
1991 JUN	.090 <1	.340 <1	.290 <1		
1991 JUL	BDL	BDL	BDL		
1991 AUG	.260 <1	.460 <1	.490 <1		.590
1991 SEP	.210 <1	.600	.380 <1		
1991 OCT	.290 <1	.390 <1	.380 <1		.410 <1
1991 NOV	.120 <1	.260 <1	.230 <1		.320 <1
1992 JAN	.120 <1	.160 <1	.060 <1		.080 <1
1992 FEB	.180 <1	.320 <1	.290 <1		.370 <1
1992 MAR	.340 <1	.540	.380 <1		.370 <1
1992 APR	BDL	.390 <1			
1992 MAY	.130 <1	.620	.440 <1		.450 <1
1992 JUN	BDL	.080 <1			
1992 SEP	.210 <1	.660	.560		.440 <1
1992 NOV	.130 <1	.370 <1	.340 <1		.210 <1

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

METALS	ZINC (UG/L)	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	DET'N LIMIT = 0.20	GUIDELINE = 5000 (A3)
1991 JUN	3,200			7,200		21,000	
1991 JUL	3,000			2,400		2,900	
1991 AUG	2,200			1,400 <T		3,400	
1991 SEP	1,100 <T			.630 <T		1,900 <T	
1991 OCT	1,800 <T			.840 <T		2,100	
1991 NOV	2,500 <T			2,580 <T		3,500	
1992 JAN	2,900			2,700		3,100	
1992 FEB	4,500			3,200		4,500	
1992 MAR	2,100			3,000		5,400	
1992 APR	1,400 <T			1,600 <T			
1992 MAY	2,600			3,300		4,800	
1992 JUN	2,000 <T			2,400			
1992 SEP	1,600 <T			2,400		4,700	
1992 NOV	2,000 <T			11,000		13,000	
							24,000

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST. FREE FLOW	DIST. SYSTEM SHIRLEY ST. STANDING	GUIDELINE = 450 (D4)
CHLOROAROMATICS				
HEXACHLOROBUTADIENE (NG/L)		DET'N LIMIT = 1,000		
30 SAMPLES	BDL	BDL	BDL	
123-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5,000		GUIDELINE = N/A
30 SAMPLES	BDL	BDL	BDL	
1234-TETRACHLOROBENZENE (NG/L)		DET'N LIMIT = 1,000		GUIDELINE = N/A
30 SAMPLES	BDL	BDL	BDL	
1235-TETRACHLOROBENZENE (NG/L)		DET'N LIMIT = 1,000		GUIDELINE = N/A
30 SAMPLES	BDL	BDL	BDL	
124-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5,000		GUIDELINE = 10000 (I)
30 SAMPLES	BDL	BDL	BDL	
1245-TETRACHLOROBENZENE (NG/L)		DET'N LIMIT = 1,000		GUIDELINE = 38000 (D4)
30 SAMPLES	BDL	BDL	BDL	
133-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5,000		GUIDELINE = N/A
30 SAMPLES	BDL	BDL	BDL	
HEXACHLOROBENZENE (NG/L)		DET'N LIMIT = 1,000		GUIDELINE = 10 (C1)
30 SAMPLES	BDL	BDL	BDL	
HEXACHLOROETHANE (NG/L)		DET'N LIMIT = 1,000		GUIDELINE = 1900 (D4)
1991 JUN	BDL	5,000 <T	5,000 <T	
1991 JUL	IAW	IAW	IAW	
1991 AUG	IAW	IAW	IAW	
1991 SEP	IAW	IAW	IAW	
1991 OCT	BDL	ISM	BDL	
1991 NOV	BDL	BDL	BDL	
1992 JAN	BDL	1,000 <T	BDL	
1992 FEB	BDL	BDL	BDL	
1992 MAR	BDL	5,000 <T	BDL	
1992 APR	BDL	1,000 <T	BDL	
1992 MAY	BDL	BDL	BDL	
1992 JUN	BDL	2,000 <T	BDL	
1992 SEP	BDL	BDL	BDL	
1992 NOV	BDL	2,000 <T		

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DET'N LIMIT = 1,000	GUIDELINE = N/A
30 SAMPLES	BOL	BOL	BDL	BDL	GUIDELINE = 74000 (04)
PENTACHLOROBENZENE (NG/L)	)			DET'N LIMIT = 1,000	GUIDELINE = 74000 (04)
30 SAMPLES	BDL	BDL	BDL	BDL	
236-TRICHLOROTOLUENE (NG/L)	)			DET'N LIMIT = 5,000	GUIDELINE = N/A
30 SAMPLES	BDL	BDL	BDL	BDL	
245-TRICHLOROTOLUENE (NG/L)	)			DET'N LIMIT = 5,000	GUIDELINE = N/A
1991 JUN	BDL	BDL	BDL	BDL	
1991 JUL	IAW	IAW	IAW	BDL	
1991 AUG	IAW	IAW	IAW	BDL	
1991 SEP	IAW	IAW	IAW	BDL	
1991 OCT	BDL	BDL	ISM	BDL	
1991 NOV	BDL	BDL	BDL	BDL	
1992 JAN	BDL	BDL	BDL	BDL	
1992 FEB	BDL	BDL	BDL	BDL	
1992 MAR	BDL	BDL	BDL	BDL	
1992 APR	BDL	BDL	BDL	BDL	
1992 MAY	BDL	BDL	BDL	BDL	
1992 JUN	BDL	BDL	43,000 <†	BDL	
1992 SEP	BDL	BDL	BDL	BDL	
1992 NOV	BDL	BDL	BDL	BDL	
26A-TRICHLOROTOLUENE (NG/L)	)			DET'N LIMIT = 5,000	GUIDELINE = N/A
30 SAMPLES	BDL	BDL	BDL	BDL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIS. SYSTEM SHIRLEY ST FREE FLOW	DIS. SYSTEM SHIRLEY ST STANDING	GUIDELINE = N/A
CHLOROPHENOLS 234-TRICHLOROPHENOL (NG/L)	2 SAMPLES	BDL	BDL	DET'N LIMIT = 100.0
2345-TECHLOROPHENOL (NG/L)	2 SAMPLES	BDL	BDL	DET'N LIMIT = 20.0
2356-TECHLOROPHENOL (NG/L)	2 SAMPLES	BDL	BDL	DET'N LIMIT = 10.0
245-TRICHLOROPHENOL (NG/L)	2 SAMPLES	BDL	BDL	DET'N LIMIT = 100.0
246-TRICHLOROPHENOL (NG/L)	2 SAMPLES	BDL	BDL	DET'N LIMIT = 20.0
PENTACHLOROPHENOL (NG/L)	2 SAMPLES	BDL	BDL	DET'N LIMIT = 10.00
	2 SAMPLES	BDL	BDL	GUIDELINE = 600000 (A1)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DISP. SYSTEM FREE FLOW	DISP. SYSTEM SHIRLEY ST STANDING
PESTICIDES AND PCB			
30 SAMPLES	BDL	BDL	DETIN LIMIT = 1.000
ALDRIN (NG/L)	)	)	GUIDELINE = 700 (A1)
1991 JUN	BDL	BDL	BDL
1991 JUL	1AW	1AW	1AW
1991 AUG	1AW	1AW	1AW
1991 SEP	1AW	1AW	1AW
1991 OCT	BDL	1SM	BDL
1991 NOV	BDL	BDL	2,000 <T
1992 JAN	1,000 <T	1,000 <T	1,000 <T
1992 FEB	1,000 <T	BDL	BDL
1992 MAR	1,000 <T	1,000 <T	1,000 <T
1992 APR	1,000 <T	2,000 <T	2,000 <T
1992 MAY	BDL	BDL	BDL
1992 JUN	1,000 <T	1,000 <T	1,000 <T
1992 SEP	BDL	BDL	BDL
1992 NOV	1,000 <T	1,000 <T	1,000 <T
BETA BHC (NG/L)			
30 SAMPLES	BDL	BDL	DETIN LIMIT = 1.00
LINDANE (GAMMA BHC) (NG/L)	)	)	GUIDELINE = 300 (G)
30 SAMPLES	BDL	BDL	BDL
ALPHA CHLORDANE (NG/L)			
30 SAMPLES	BDL	BDL	DETIN LIMIT = 1.000
GAMMA CHLORDANE (NG/L)	)	)	GUIDELINE = 4,000 (A1)
30 SAMPLES	BDL	BDL	BDL
DIELDRIN (NG/L)			
30 SAMPLES	BDL	BDL	DETIN LIMIT = 2.00
METHOXYCHLOR (NG/L)	)	)	GUIDELINE = 7000 (A1)
30 SAMPLES	BDL	BDL	BDL
ENDOSULFAN 1 (NG/L)	)	)	DETIN LIMIT = 5.0
30 SAMPLES	BDL	BDL	GUIDELINE = 900000 (A1)
ENDOSULFAN 1 (NG/L)	)	)	DETIN LIMIT = 2.00
30 SAMPLES	BDL	BDL	GUIDELINE = 74000 (D4)
ENDOSULFAN 1 (NG/L)			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 CORBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DET'N SYSTEM SHIRLEY ST FREE FLOW	DET'N SYSTEM SHIRLEY ST STANDING	GUIDELINE = 74000 (D4)
PESTICIDES AND PCB				
ENDOSULFAN 11 (NG/L)	BDL	BDL	BDL	GUIDELINE = 1600 (D3)
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = 1600 (D3)
ENDOSULFAN SULPHATE (NG/L)	BDL	BDL	BDL	GUIDELINE = N/A
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = N/A
HEPTACHLOR EPOXIDE (NG/L)	BDL	BDL	BDL	GUIDELINE = 3000 (A1)
16 SAMPLES	BDL	BDL	BDL	GUIDELINE = 3000 (A1)
HEPTACHLOR (NG/L)	BDL	BDL	BDL	GUIDELINE = 3000 (A1)
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = 3000 (A1)
MIREX (NG/L)	BDL	BDL	BDL	GUIDELINE = N/A
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = N/A
OXYCHLORDANE (NG/L)	BDL	BDL	BDL	GUIDELINE = N/A
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = N/A
O,P-DDT (NG/L)	BDL	BDL	BDL	GUIDELINE = 30000 (A1)
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = 30000 (A1)
PCB (NG/L)	BDL	BDL	BDL	GUIDELINE = 3000 (A2)
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = 3000 (A2)
P,P-DDD (NG/L)	BDL	BDL	BDL	GUIDELINE = 30000 (A1)
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = 30000 (A1)
P,P-DDE (NG/L)	BDL	BDL	BDL	GUIDELINE = 30000 (A1)
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = 30000 (A1)
P,P-DDT (NG/L)	BDL	BDL	BDL	GUIDELINE = 30000 (A1)
30 SAMPLES	BDL	BDL	BDL	GUIDELINE = 30000 (A1)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING
PESTICIDES AND PCB			
TOXAPHENE (NG/L)	BDL	BDL	BDL
30 SAMPLES			
AMETRINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
ATRAZINE (NG/L)	BDL	BDL	BDL
1991 JUN	IAW	IAW	IAW
1991 JUL	IAW	IAW	IAW
1991 AUG	IAW	IAW	IAW
1991 SEP	IAW	IAW	IAW
1991 OCT	IAW	IAW	IAW
1991 NOV	110,000 <T	130,000 <T	130,000 <T
1992 JAN	120,000 <T	110,000 <T	110,000 <T
1992 FEB	150,000 <T	160,000 <T	160,000 <T
1992 MAR	70,000 <T	64,000 <T	64,000 <T
1992 APR	120,000 <T	120,000 <T	120,000 <T
1992 MAY	110,000 <T	100,000 <T	100,000 <T
1992 JUN	110,000 <T	100,000 <T	100,000 <T
1992 SEP	130,000 <T	110,000 <T	110,000 <T
1992 NOV	70,000 <T	90,000 <T	90,000 <T
GUIDELINE = 5000 (A1)			
ATRATONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
CYANAZINE (BLADEX) (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DESETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DESETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
GUIDELINE = 5000 (A2)			
DETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
GUIDELINE = 300000 (D3)			
DETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
GUIDELINE = 60000 (A2)			
DETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
GUIDELINE = N/A			
DETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
GUIDELINE = 10000 (A2)			
DETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
GUIDELINE = 60000 (A2)			
DETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
GUIDELINE = 100000 (A2)			
DETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
GUIDELINE = 52500 (D3)			
DETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
GUIDELINE = 700000 (D3)			
DETHYL ATRAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
DETHYL SIMAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROMETONE (NG/L)	BDL	BDL	BDL
18 SAMPLES			
PROPAZINE (NG/L)	BDL	BDL	BDL
18 SAMPLES			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING
PESTICIDES AND PCB			
PROMETRYNE (NG/L) 18 SAMPLES	BDL	BDL	DET'N LIMIT = 50,000 GUIDELINE = 1000 (A2)
METRIBUZIN (SENCOR) (NG/L) 18 SAMPLES	BDL	BDL	DET'N LIMIT = 100.0 GUIDELINE = 80000 (A1)
SIMAZINE (NG/L) 18 SAMPLES	BDL	BDL	DET'N LIMIT = 50.00 GUIDELINE = 10000 (A2)
ALACHLOR (CLASSO) (NG/L) 18 SAMPLES	BDL	BDL	DET'N LIMIT = 500.0 GUIDELINE = 5000 (A2)
METOLACHLOR (NG/L) 18 SAMPLES	BDL	BDL	DET'N LIMIT = 500.0 GUIDELINE = 50000 (A2)
HEXAACYCLOCLOPENTADIEN (NG/L) 1991 JUN	BDL	BDL	DET'N LIMIT = 5.00 GUIDELINE = 203600 (D4)
1991 JUL	!AW	!AW	BDL
1991 AUG	!AW	!AW	!AW
1991 SEP	!AW	!AW	!AW
1991 OCT	BDL	!SM	BDL
1991 NOV	BDL	BDL	8,000 <T
1992 JAN	BDL	BDL	10,000 <T 9,000 <T
1992 FEB	BDL	!QU	!QU
1992 MAR	!QU	!QU	!QU
1992 APR	!QU	!QU	!QU
1992 MAY	!QU	!QU	!QU
1992 JUN	!QU	!QU	!QU
1992 SEP	!QU	!QU	!QU
1992 NOV	!QU	!QU	!QU

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DET'N LIMIT =	0.2	GUIDELINE = N/A	
					PHENOLICS (UG/L)	
1991	JUN	.400 <T	.400 <T			
1991	JUL	.200 <T	.600 <T			
1991	AUG	.400 <T	.200 <T			
1991	SEP	.400 <T	1.400			
1991	OCT	.600 <T	.400 <T			
1991	NOV	1.200	.800 <T			
1992	JAN	BDL	BDL			
1992	FEB	BDL	BDL			
1992	MAR	BDL	BDL			
1992	APR	BDL	.600 <T			
1992	MAY	BDL	BDL			
1992	JUN	.800 <T	.600 <T			
1992	SEP	BDL	.400 <T			
1992	NOV	BDL	BDL			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING
POLYAROMATIC HYDROCARBONS			
PHENANTHRENE (NG/L) 7 SAMPLES	BDL	BDL	BDL
ANTHRACENE (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 1.0 GUIDELINE = N/A
FLUORANTHENE (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 20.0 GUIDELINE = 42000 (D4)
PYRENE (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 20.0 GUIDELINE = N/A
BENZO(A)ANTHRACENE (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 20.0 GUIDELINE = N/A
CHRYSENE (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 50.0 GUIDELINE = N/A
DIMETH. BENZ(A)ANTHR (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 5.0 GUIDELINE = N/A
BENZO(E) PYRENE (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 50.0 GUIDELINE = N/A
BENZO(B) FLUORANTHEN (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 10.0 GUIDELINE = N/A
PERYLENE (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 10.0 GUIDELINE = N/A
BENZO(K) FLUORANTHEN (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 1.0 GUIDELINE = N/A
BENZO(A) PYRENE (NG/L) 7 SAMPLES	BDL	BDL	DET'N LIMIT = 5.0 GUIDELINE = 10 (A1)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT	TREATMENT PLANT	DIST. SYSTEM	
RAW	TREATED	SHIRLEY ST	GUIDELINE = N/A
FREE FLOW			
POLYAROMATIC HYDROCARBONS			
BENZO(G,H,I) PERYLEN (NG/L)			
7 SAMPLES	BDL	BDL	BDL
DIBENZO(A,H) ANTHRAC (NG/L)			
7 SAMPLES	BDL	BDL	BDL
INDENO(1,2,3-C,D) PY (NG/L)			
7 SAMPLES	BDL	BDL	BDL
BENZO(B) CHRYSENE (NG/L)			
7 SAMPLES	BDL	BDL	BDL
CORONENE (NG/L)			
7 SAMPLES	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW STANDING	DIST. SYSTEM SHIRLEY ST FREE FLOW STANDING
2,4,5-T (NG/L)	SPECIFIC PESTICIDES)	DET'N LIMIT = 50.0	GUIDELINE = 280000 (A1)
2 SAMPLES	BDL	BDL	
2,4-D (NG/L)	)	DET'N LIMIT = 100.0	GUIDELINE = 100000 (A1)
2 SAMPLES	BDL	BDL	
2,4-DB (NG/L)	)	DET'N LIMIT = 200.0	GUIDELINE = N/A
2 SAMPLES	BDL	BDL	
2,4,0 PROPIONIC ACID (NG/L)	)	DET'N LIMIT = 100.0	GUIDELINE = N/A
2 SAMPLES	BDL	BDL	
DICAMBA (NG/L)	)	DET'N LIMIT = 50.0	GUIDELINE = 120000 (A1)
2 SAMPLES	BDL	BDL	
2,4,5-TP (SILVEX) (NG/L)	)	DET'N LIMIT = 20.00	GUIDELINE = 10000 (A1)
2 SAMPLES	BDL	BDL	
DIAZINON (NG/L)	)	DET'N LIMIT = 20.0	GUIDELINE = 20000 (A1)
2 SAMPLES	BDL	BDL	
DICHLORODOS (NG/L)	)	DET'N LIMIT = 20.0	GUIDELINE = N/A
2 SAMPLES	BDL	BDL	
CHLORPYRIFOS (NG/L)	)	DET'N LIMIT = 20.0	GUIDELINE = N/A
2 SAMPLES	BDL	BDL	
ETHION (NG/L)	)	DET'N LIMIT = 20.0	GUIDELINE = 35000 (G)
2 SAMPLES	BDL	BDL	
MALATHION (NG/L)	)	DET'N LIMIT = 20.0	GUIDELINE = 190000 (A1)
2 SAMPLES	BDL	BDL	
MEVINPHOS (NG/L)	)	DET'N LIMIT = 20.0	GUIDELINE = N/A
2 SAMPLES	BDL	BDL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING
SPECIFIC PESTICIDES			
METHYL PARATHION (NG/L)	BDL	BDL	DETIN LIMIT = 50.0 GUIDELINE = 9000 (03)
2 SAMPLES	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = N/A
METHYLTRITHION (NG/L)	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = N/A
2 SAMPLES	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = 50000 (A1)
PARATHION (NG/L)	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = 50000 (A1)
2 SAMPLES	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = 50000 (A2)
PHORATE (NG/L)	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = 2000 (A2)
2 SAMPLES	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = N/A
RELDAN (NG/L)	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = N/A
2 SAMPLES	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = N/A
RONNEL (NG/L)	BDL	BDL	DETIN LIMIT = 20.0 GUIDELINE = N/A
2 SAMPLES	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = 90000 (A1)
CARBOFURAN (NG/L)	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = 90000 (A1)
2 SAMPLES	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = 90000 (A1)
CHLORPROPHAM (CIPC) (NG/L)	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = 350000 (G)
2 SAMPLES	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = N/A
DIALLATE (NG/L)	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = N/A
2 SAMPLES	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = N/A
EPTAM (NG/L)	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = N/A
2 SAMPLES	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = N/A
IPC (NG/L)	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = N/A
2 SAMPLES	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = N/A
PROPOXUR (NG/L)	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = 120000 (03)
2 SAMPLES	BDL	BDL	DETIN LIMIT = 2000.0 GUIDELINE = 120000 (03)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	GUIDELINE = 90000 (A1)
<hr/>				
CARBARYL (NG/L)		DET'N LIMIT = 200.0		
2 SAMPLES	BDL	BDL		
<hr/>				
BUTYLATE (NG/L)		DET'N LIMIT = 2000.0		GUIDELINE = 245000 (D3)
2 SAMPLES	BDL	BDL		
<hr/>				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT		TREATMENT PLANT		DIST. SYSTEM		DIST. SYSTEM	
RAW	TREATED	SHIRLEY ST	STANDING	SHIRLEY ST	STANDING	SHIRLEY ST	STANDING
VOLATILES							
40 SAMPLES	BDL	BDL	BDL	DETIN LIMIT = 0.05	DETIN LIMIT = 0.05	DETIN LIMIT = 0.05	DETIN LIMIT = 0.05
TOLUENE (UG/L)	)	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUL	BDL	BDL	BDL	.050 <T	BDL	BDL	BDL
1991 AUG	BDL	BDL	BDL	.050 <T	BDL	BDL	BDL
1991 SEP	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JAN	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAR	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 SEP	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL
ETHYLBENZENE (UG/L)							
40 SAMPLES	BDL	BDL	BDL	DETIN LIMIT = 0.05	DETIN LIMIT = 0.05	DETIN LIMIT = 0.05	DETIN LIMIT = 0.05
ETHYLBENZENE (UG/L)	)	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUL	BDL	BDL	BDL	.100 <T	BDL	BDL	BDL
1991 AUG	BDL	BDL	BDL	.100 <T	BDL	BDL	BDL
1991 SEP	BDL	BDL	BDL	.100 <T	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JAN	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAR	BDL	BDL	BDL	.150 <T	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	.100 <T	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	.050 <T	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	.100 <T	BDL	BDL	BDL
1992 SEP	BDL	BDL	BDL	.250 <T	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	.050 <T	BDL	BDL	BDL
P-XYLENE (UG/L)							
40 SAMPLES	BDL	BDL	BDL	DETIN LIMIT = 0.10	DETIN LIMIT = 0.10	DETIN LIMIT = 0.10	DETIN LIMIT = 0.10
P-XYLENE (UG/L)	)	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 AUG	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 SEP	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JAN	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAR	BDL	BDL	BDL	.150 <T	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	.100 <T	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	.050 <T	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	.100 <T	BDL	BDL	BDL
1992 SEP	BDL	BDL	BDL	.250 <T	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	.050 <T	BDL	BDL	BDL
GUIDELINE = 5 (A3)							
GUIDELINE = 24 (A3)							
GUIDELINE = 2.4 (A3*)							
GUIDELINE = 300 (A3*)							

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT RAW	TREATMENT PLANT TREATED	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST		GUIDELINE = 300 (A3*)
			DIST.	STANDING	
VOLATILES					
O-XYLENE (UG/L)	)				DET'N LIMIT = 0.05
1991 JUN	BDL	BDL	BDL	BDL	BDL
1991 JUL	BDL	BDL	BDL	BDL	BDL
1991 AUG	BDL	BDL	BDL	BDL	BDL
1991 SEP	.050 <T		BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL
1992 JAN	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL
1992 MAR	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL
1992 SEP	BDL	BDL	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	BDL	BDL
STYRENE (UG/L)					
1991 JUN	BDL	BDL	BDL	BDL	DET'N LIMIT = 0.05
1991 JUL	BDL	BDL	.150 <T	BDL	BDL
1991 AUG	BDL	BDL	BDL	BDL	.050 <T
1991 SEP	.150 <T		.100 <T	.150 <T	
1991 OCT	.050 <T		BDL	BDL	
1991 NOV	.050 <T		.100 <T	.200 <T	
1992 JAN	BDL		.100 <T	.100 <T	
1992 FEB	.100 <T		BDL	.150 <T	
1992 MAR	BDL		.150 <T	BDL	
1992 APR	.100 <T		.100 <T		
1992 MAY	.200 <T		.100 <T	.150 <T	
1992 JUN	.150 <T		.050 <T		
1992 SEP	.150 <T		.150 <T	.250 <T	
1992 NOV	.100 <T		BDL	BDL	
1,1-DICHLOROETHYLENE (UG/L)					
40 SAMPLES	BDL	BDL	BDL	BDL	DET'N LIMIT = 0.100
					GUIDELINE = 7 (D1)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT - RAW	TREATMENT PLANT - TREATED	DISI. SYSTEM SHIRLEY ST FREE FLOW	DISI. SYSTEM SHIRLEY ST STANDING	DET'N LIMIT = 0.50	GUIDELINE = 50 (A1)
VOLATILES METHYLENE CHLORIDE (UG/L)					
1991 JUN BDL	BDL	BDL	BDL	BDL	BDL
1991 JUL BDL	BDL	BDL	BDL	BDL	BDL
1991 AUG BDL	BDL	BDL	BDL	BDL	BDL
1991 SEP BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT BDL	BDL	BDL	BDL	BDL	BDL
1991 NOV BDL	BDL	BDL	BDL	BDL	BDL
1992 JAN BDL	BDL	BDL	BDL	3.000 <†	3.000 <†
1992 FEB BDL	BDL	BDL	BDL	3.500 <†	3.500 <†
1992 MAR BDL	BDL	BDL	BDL	4.500 <†	4.500 <†
1992 APR BDL	BDL	BDL	BDL	4.500 <†	4.500 <†
1992 MAY BDL	BDL	BDL	BDL	3.000 <†	3.500 <†
1992 JUN BDL	BDL	BDL	BDL	1.500 <†	1.500 <†
1992 SEP BDL	BDL	BDL	BDL		
1992 NOV BDL	BDL	BDL	BDL		
T12-DICHLOROETHYLENE (UG/L)				DET'N LIMIT = 0.10	GUIDELINE = 70 (01)
40 SAMPLES BDL	BDL	BDL	BDL	BDL	BDL
1,1-DICHLOROETHANE (UG/L)				DET'N LIMIT = 0.100	GUIDELINE = N/A
40 SAMPLES BDL	BDL	BDL	BDL	BDL	BDL
CHLOROFORM (UG/L)				DET'N LIMIT = 0.10	GUIDELINE = 350 (A1+)
1991 JUN BDL	BDL	BDL	BDL	3.200	4.000
1991 JUL BDL	BDL	BDL	BDL	4.600	4.800
1991 AUG BDL	BDL	BDL	BDL	10.500	7.500
1991 SEP BDL	BDL	BDL	BDL	6.700	3.800
1991 OCT BDL	BDL	BDL	BDL	9.000	6.100
1991 NOV BDL	BDL	BDL	BDL	10.000	4.000
1992 JAN BDL	BDL	BDL	BDL	8.700	3.900
1992 FEB BDL	BDL	BDL	BDL	4.900	3.200
1992 MAR BDL	BDL	BDL	BDL	9.100	4.600
1992 APR BDL	BDL	BDL	BDL	9.200	
1992 MAY BDL	BDL	BDL	BDL	8.400	6.100
1992 JUN BDL	BDL	BDL	BDL	10.600	7.800
1992 SEP BDL	BDL	BDL	BDL	10.500	10.300
1992 NOV BDL	BDL	BDL	BDL	11.800	
111,TRICHLOROETHANE (UG/L)				DET'N LIMIT = 0.02	GUIDELINE = 200 (01)
40 SAMPLES BDL	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING
VOLATILES 1,2 DICHLOROETHANE (UG/L)	40 SAMPLES BDL	DETN LIMIT = 0.05 BDL	GUIDELINE = 5 (A1)
CARBON TETRACHLORIDE (UG/L)	40 SAMPLES BDL	DETN LIMIT = 0.20 BDL	GUIDELINE = 5 (A1)
1,2-DICHLOROPROpane (UG/L)	40 SAMPLES BDL	DETN LIMIT = 0.05 BDL	GUIDELINE = 5 (01)
TRICHLOROETHYLENE (UG/L)	40 SAMPLES BDL	DETN LIMIT = 0.10 BDL	GUIDELINE = 50 (A1)
DICHLOROBROMOMETHANE (UG/L)	40 SAMPLES BDL	DETN LIMIT = 0.05 BDL	GUIDELINE = 350 (A1+)
112-TRICHLOROETHANE (UG/L)	40 SAMPLES BDL	DETN LIMIT = 0.05 BDL	GUIDELINE = 0.6 (D4)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	PLANT SHIRLEY ST FREE FLOW	PLANT SHIRLEY ST STANDING	DET'N LIMIT = 0.10	GUIDELINE = 350 (A1+)
VOLATILES CHLORODIBROMOMETHANE (UG/L)					
1991 JUN	BOL	2,800		2,800	
1991 JUL	BOL	3,800		3,200	
1991 AUG	BOL	6,000		4,600	
1991 SEP	BOL	4,700		3,100	
1991 OCT	BOL	6,700		4,600	
1991 NOV	BOL	5,900		3,400	
1992 JAN	BOL	7,000		4,000	
1992 FEB	BOL	4,600		2,900	
1992 MAR	BOL	6,100		2,800	
1992 APR	BOL	9,300			
1992 MAY	BOL	6,800		6,300	
1992 JUN	BOL	5,700		4,800	
1992 JUL	BOL	6,400		4,900	
1992 SEP	BOL	5,500			
1992 NOV	BOL				
TETRACHLOROETHYLENE (UG/L)					
40 SAMPLES	BOL	BOL	BOL	DET'N LIMIT = 0.05	GUIDELINE = 65 (A5)
BROMOFORM (UG/L)					
1991 JUN	BOL	.600 <1		.600 <1	
1991 JUL	BOL	.800 <1		.600 <1	
1991 AUG	BOL	.800 <1		.600 <1	
1991 SEP	BOL	.800 <1		.600 <1	
1991 OCT	BOL	1,200 <1		.800 <1	
1991 NOV	BOL	1,000 <1		.600 <1	
1992 JAN	BOL	BOL	BOL		
1992 FEB	BOL	1,000 <1		.800 <1	
1992 MAR	BOL	BOL	BOL		
1992 APR	BOL	.800 <1		BOL	
1992 MAY	BOL	BOL	BOL		
1992 JUN	BOL	.800 <1		.800 <1	
1992 SEP	BOL	.800 <1		.600 <1	
1992 NOV	BOL	.600 <1			
1122-TETCHLOROETHANE (UG/L)					
40 SAMPLES	BOL	BOL	BOL	DET'N LIMIT = 0.05	GUIDELINE = 0.17 (D4)
VINYL CHLORIDE (UG/L)					
19 SAMPLES	BOL	BOL	BOL	DET'N LIMIT = 0.100	GUIDELINE = 2 (O1)

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM SHIRLEY ST FREE FLOW	DIST. SYSTEM SHIRLEY ST STANDING	GUIDELINE = 70 (D1)
VOLATILES C12-DICHLOROETHYLENE (UG/L)	BDL	BDL	BDL	DET'N LIMIT = 0.100
19 SAMPLES	BDL	BDL	BDL	GUIDELINE = 70 (D1)
CHLOROBENZENE (UG/L)	)			DET'N LIMIT = 0.10
40 SAMPLES	BDL	BDL	BDL	GUIDELINE = 1510 (03)
1,4-DICHLOROBENZENE (UG/L)	)			DET'N LIMIT = 0.10
40 SAMPLES	BDL	BDL	BDL	GUIDELINE = 5 (A1)
1,3-DICHLOROBENZENE (UG/L)	)			DET'N LIMIT = 0.10
40 SAMPLES	BDL	BDL	BDL	GUIDELINE = 3750 (03)
1,2-DICHLOROBENZENE (UG/L)	)			DET'N LIMIT = 0.05
40 SAMPLES	BDL	BDL	BDL	GUIDELINE = 200 (A1)
ETHYLENE DIBROMIDE (UG/L)	)			DET'N LIMIT = 0.05
40 SAMPLES	BDL	BDL	BDL	GUIDELINE = 50 (01)
TOTAL TRIHALOMETHANES (UG/L)	)			DET'N LIMIT = 0.50
1991 JUN	BDL	10,800	11,300	GUIDELINE = 350 (A1)
1991 JUL	-BDL	14,500	13,350	
1991 AUG	BDL	27,000	19,750	
1991 SEP	BDL	19,650	11,600	
1991 OCT	BDL	26,800	17,300	
1991 NOV	BDL	26,300	12,200	
1992 JAN	BDL	24,950	12,250	
1992 FEB	BDL	16,900	10,200	
1992 MAR	BDL	24,650	11,750	
1992 APR	BDL	29,400		
1992 MAY	BDL	23,000	17,900	
1992 JUN	BDL	26,400		
1992 SEP	BDL	27,250	20,550	
1992 NOV	BDL	28,550	24,700	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 COBOURG WTP

TREATMENT PLANT TREATMENT PLANT DIST. SYSTEM
TREATED TREATED SHIRLEY ST
FREE FLOW

RADIONUCLIDES		DET'N LIMIT = 0.70		GUIDELINE = N/A
COBALT 60 (Bq/L))			
2 SAMPLES	BDL	BDL		GUIDELINE = N/A
CESIUM 134 (Bq/L)	)		DET'N LIMIT = 0.70	
2 SAMPLES	BDL	BDL		GUIDELINE = N/A
CESIUM 137 (Bq/L)	)		DET'N LIMIT = 0.70	
2 SAMPLES	BDL	BDL		GUIDELINE = 50 (A1)
GROSS ALPHA COUNT (Bq/L)	)		DET'N LIMIT = 0.04	
1991 OCT	BDL	.050		GUIDELINE = 0.55 (D1)
GROSS BETA COUNT (Bq/L)	)		DET'N LIMIT = 0.04	
1991 OCT	.090	.110		GUIDELINE = N/A
TRITIUM (Bq/L)	)		DET'N LIMIT = 7.00	
2 SAMPLES	BDL	BDL		GUIDELINE = 40000 (A1)
TOXINE 131 (Bq/L)	)		DET'N LIMIT = 0.70	
2 SAMPLES	BDL	BDL		GUIDELINE = 10 (A1)

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILT.	CT/ML	0	500/ML (A3)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100ML (A1)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	0	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	0	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	0	N/A
FIELD PH	DMNSLESS	N/A	6.5-8.5 (A4)
FIELD TEMPERATURE	DEG.C	N/A	15.0 (A3)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	0.20	30-500 (A4)
AMMONIUM TOTAL	MG/L	0.002	0.05 (F2)
CALCIUM	MG/L	0.20	100.0 (F2)
CHLORIDE	MG/L	0.20	250.0 (A3)
COLOUR	TCU	0.50	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.00	400.0 (F2)
CYANIDE	MG/L	0.001	0.2 (A1)
DISSOLVED ORGANIC CARBON	MG/L	0.10	5.0 (A3)
FLUORIDE	MG/L	0.01	1.5* (A1)
HARDNESS	MG/L	0.50	80-100 (A4)
IONCAL	DMNSLESS	N/A	N/A
LANGELIERS INDEX	DMNSLESS	N/A	N/A
MAGNESIUM	MG/L	0.10	30.0 (F2)
NITRATES (TOTAL)	MG/L	0.005	10.0 (A1)
NITRITE	MG/L	0.001	1.0 (A1)
NITROGEN TOTAL KJELDAHL	MG/L	0.02	N/A
PH	DMNSLESS	N/A	6.5-8.5 (A4)
PHOSPHORUS FIL REACT	MG/L	0.0005	N/A
PHOSPHORUS TOTAL	MG/L	0.002	0.4 (F2)
POTASSIUM	MG/L	0.010	10.0 (F2)
RESIDUE FILTRATE (CALCULATED TDS)	MG/L	N/A	500.0 (A3)
SODIUM	MG/L	0.20	200.0 (A4)
SULPHATE	MG/L	0.20	500.0 (A4)
TURBIDITY	FTU	0.05	1.0 (A1)
* The Maximum Acceptable Concentration (MAC) for <u>naturally occurring fluoride</u> in drinking water is 2.4 mg/L.			
CHLOROAROMATICS			
1,2,3-TRICHLOROBENZENE	NG/L	5.0	N/A
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.0	N/A
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.0	N/A
1,2,4-TRICHLOROBENZENE	NG/L	5.0	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.0	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.0	N/A
2,3,6-TRICHLOROTOLUENE	NG/L	5.0	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.0	N/A
2,6A-TRICHLOROTOLUENE	NG/L	5.0	N/A
HEXACHLOROBENZENE (HCB)	NG/L	1.0	10 (C1)
HEXACHLOROBUTADIENE	NG/L	1.0	450 (D4)
HEXACHLOROETHANE	NG/L	1.0	1900 (D4)
OCTACHLOROSTYRENE	NG/L	1.0	N/A
PENTACHLOROBENZENE	NG/L	1.0	74000 (D4)
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	100.0	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	20.0	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	10.0	N/A

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
2,4,5-TRICHLOROPHENOL	NG/L	100.0	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	20.0	5000 (A1)
PENTACHLOROPHENOL	NG/L	10.0	60000 (A1)
METALS			
ALUMINUM	UG/L	0.10	100 (A4)
ANTIMONY	UG/L	0.05	146 (D4)
ARSENIC	UG/L	0.10	25 (A1)
BARIUM	UG/L	0.05	1000 (A2)
BERYLLIUM	UG/L	0.05	6800 (D4)
BORON	UG/L	2.00	5000 (A1)
CADMIUM	UG/L	0.05	5 (A1)
CHROMIUM	UG/L	0.50	50 (A1)
COBALT	UG/L	0.02	N/A
COPPER	UG/L	0.50	1000 (A3)
IRON	UG/L	6.00	300 (A3)
LEAD	UG/L	0.05	10 (A1)
MANGANESE	UG/L	0.05	50 (A3)
MERCURY	UG/L	0.02	1 (A1)
MOLYBDENUM	UG/L	0.05	N/A
NICKEL	UG/L	0.20	350 (D3)
SELENIUM	UG/L	1.00	10 (A1)
SILVER	UG/L	0.05	N/A
STRONTIUM	UG/L	0.10	N/A
THALLIUM	UG/L	0.05	13 (D4)
TITANIUM	UG/L	0.50	N/A
URANIUM	UG/L	0.05	100 (A1)
VANADIUM	UG/L	0.05	N/A
ZINC	UG/L	0.20	5000 (A3)
POLYNUCLEAR AROMATIC HYDROCARBONS			
ANTHRACENE	NG/L	1.0	N/A
BENZO(A) ANTHRACENE	NG/L	20.0	N/A
BENZO(A) PYRENE	NG/L	5.0	10 (A1)
BENZO(B) CHRYSENE	NG/L	2.0	N/A
BENZO(B) FLUORANTHENE	NG/L	10.0	N/A
BENZO(E) PYRENE	NG/L	50.0	N/A
BENZO(G, H) PERYLENE	NG/L	20.0	N/A
BENZOK FLUORANTHENE	NG/L	1.0	N/A
CHRYSENE	NG/L	50.0	N/A
CORONENE	NG/L	10.0	N/A
DIBENZO(A, H) ANTHRACENE	NG/L	10.0	N/A
DIMETHYL BENZO(A) ANTHRACENE	NG/L	5.0	N/A
FLUORANTHENE	NG/L	20.0	42000 (D4)
INDENO[1,2,3-C,D] PYRENE	NG/L	20.0	N/A
PERYLENE	NG/L	10.0	N/A
PHENANTHRENE	NG/L	10.0	N/A
PYRENE	NG/L	20.0	N/A
PESTICIDES & PCB			
ALACHLOR (LASSO)	NG/L	500.0	5000 (A2)
ALDRIN	NG/L	1.0	700 (A1)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700 (G)
ALPHA CHLORDANE	NG/L	2.0	7000 (A1)
AMETRINE	NG/L	50.0	300000 (D3)
ATRATONE	NG/L	50.0	N/A
ATRAZINE	NG/L	50.0	60000 (A2)
DESETHYL ATRAZINE	NG/L	200.0	60000 (A2)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300 (G)
CYANAZINE (BLADEX)	NG/L	100.0	10000 (A2)
DIELDRIN	NG/L	2.0	700 (A1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000 (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	5.0	74000 (D4)
ENDOSULFAN SULPHATE (THIODAN SULPHATE)	NG/L	5.0	N/A

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
ENDRIN	NG/L	5.0	1600 (D3)
GAMMA CHLORDANE	NG/L	2.0	7000 (A1)
HEPTACHLOR	NG/L	1.0	3000 (A1)
HEPTACHLOR EPOXIDE	NG/L	1.0	3000 (A1)
HEXACHLOROCYCLOPENTADIENE	NG/L	5.0	206000 (D4)
LINDANE (GAMMA BHC)	NG/L	1.0	4000 (A1)
METHOXYCHLOR	NG/L	5.0	900000 (A1)
METOLACHLOR	NG/L	500.0	50000 (A2)
METRIBUZIN (SENCOR)	NG/L	100.0	80000 (A1)
MIREX	NG/L	5.0	N/A
P,P-DDD	NG/L	5.0	30000 (A1)
O,P-DDT	NG/L	5.0	30000 (A1)
P,P-DDT	NG/L	5.0	30000 (A1)
P,P-DDE	NG/L	1.0	30000 (A1)
OXYCHLORDANE	NG/L	2.0	N/A
PCB	NG/L	20.0	3000 (A2)
PROMETONE	NG/L	50.0	52500 (D3)
PROMETRYNE	NG/L	50.0	1000 (A2)
PROPAZINE	NG/L	50.0	700000 (D3)
SIMAZINE	NG/L	50.0	10000 (A2)
DESETHYL SIMAZINE	NG/L	200.0	10000 (A2)
TOXAPHENE	NG/L	500.0	5000 (A1)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	0.2	N/A
SPECIFIC PESTICIDES			
2,4 D PROPIONIC ACID	NG/L	100.0	N/A
2,4,5-TRICHLOROPHOENOXY ACETIC ACID	NG/L	50.0	280000 (A1)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.0	100000 (A1)
2,4-DICHLOROPHENOXYBUTYRIC ACID (2,4-DB)	NG/L	200.0	N/A
2,4,5-TP (SILVEK)	NG/L	20.0	10000 (A1)
BUTYLATE (SUTAN)	NG/L	2000.0	245000 (D3)
CARBARYL (SEVIN)	NG/L	200.0	90000 (A1)
CARBOFURAN	NG/L	2000.0	90000 (A1)
CHLORPROPHAM (CIPC)	NG/L	2000.0	350000 (G)
CHLORPYRIFOS (DURSBAN)	NG/L	20.0	N/A
DIALLATE	NG/L	2000.0	N/A
DIAZINON	NG/L	20.0	20000 (A1)
DICAMBA	NG/L	50.0	120000 (A1)
DICHLOROVOS	NG/L	20.0	N/A
EPTAM	NG/L	2000.0	N/A
ETHION	NG/L	20.0	35000 (G)
IPC	NG/L	2000.0	N/A
MALATHION	NG/L	20.0	190000 (A1)
METHYL PARATHION	NG/L	50.0	9000 (D3)
METHYLTRITHION	NG/L	20.0	N/A
MEVINPHOS	NG/L	20.0	N/A
PARATHION	NG/L	20.0	50000 (A1)
PHORATE (THIMET)	NG/L	20.0	2000 (A2)
PICHLORAM	NG/L	100.0	190000 (A2)
PROPOXUR (BAYGON)	NG/L	2000.0	140000 (D3)
RELDAN	NG/L	20.0	N/A
RONNEL	NG/L	20.0	N/A
VOLATILES			
1,1-DICHLOROETHANE	UG/L	0.10	N/A
1,1-DICHLOROETHYLENE	UG/L	0.10	7 (D1)
1,2-DICHLOROBENZENE	UG/L	0.05	200 (A1)
1,2-DICHLOROETHANE	UG/L	0.05	5 (A1)
1,2-DICHLOROPROPANE	UG/L	0.05	5 (D1)
1,3-DICHLOROBENZENE	UG/L	0.10	3750 (D3)
1,4-DICHLOROBENZENE	UG/L	0.10	5 (A1)
1,1,1-TRICHLOROETHANE	UG/L	0.02	200 (D1)
1,1,2-TRICHLOROETHANE	UG/L	0.05	0.6 (D4)
1,1,2,2-TETRACHLOROETHANE	UG/L	0.05	0.17 (D4)

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BENZENE	UG/L	0.05	5 (A1)
BROMOFORM	UG/L	0.20	350 (A1+)
CARBON TETRACHLORIDE	UG/L	0.20	5 (A1)
CHLOROBENZENE	UG/L	0.10	1510 (D3)
CHLORODIBROMOMETHANE	UG/L	0.10	350 (A1+)
CHLOROFORM	UG/L	0.10	350 (A1+)
CIS 1,2-DICHLOROETHYLENE	UG/L	0.10	70 (D1)
DICHLOROBROMOMETHANE	UG/L	0.05	350 (A1+)
ETHYLENE DIBROMIDE	UG/L	0.05	50 (D1)
ETHYLBENZENE	UG/L	0.05	2.4 (A3)
M-XYLENE	UG/L	0.10	300 (A3*)
METHYLENE CHLORIDE	UG/L	0.50	50 (A1)
O-XYLENE	UG/L	0.05	300 (A3*)
P-XYLENE	UG/L	0.10	300 (A3*)
STYRENE	UG/L	0.05	100 (D1)
TETRACHLOROETHYLENE	UG/L	0.05	65 (A5)
TRANS 1,2-DICHLOROETHYLENE	UG/L	0.10	70 (D1)
TOLUENE	UG/L	0.05	24 (A3)
TOTAL TRIHALOMETHANES	UG/L	0.50	350 (A1)
TRICHLOROETHYLENE	UG/L	0.10	50 (A1)
VINYL CHLORIDE	UG/L	0.10	2 (D1)
RADIONUCLIDES			
TRITIUM	BQ/L	7.0	40000 (A1)
GROSS ALPHA COUNT	BQ/L	0.04	0.55# (D1)
GROSS BETA COUNT	BQ/L	0.04	N/A
COBALT 60	BQ/L	0.70	N/A
CESIUM 134	BQ/L	0.70	N/A
CESIUM 137	BQ/L	0.70	50 (A1)
IODINE 131	BQ/L	0.70	10 (A1)

Equal to 15.0 Picocuries/litre

Appendix A

DRINKING WATER SURVEILLANCE PROGRAM PROGRAM DESCRIPTION

The Drinking Water Surveillance Program (DWSP) for Ontario monitors drinking water quality at municipal water supply systems. The DWSP Database Management System provides a computerized drinking water quality information system for the supplies monitored. The objectives of the program are to provide:

- immediate, reliable, current information on drinking water quality;
- a flagging mechanism for guideline exceedance;
- a definition of contaminant levels and trends;
- a comprehensive background for remedial action;
- a framework for assessment of new contaminants; and
- an indication of treatment efficiency of plant processes.

PROGRAM

The DWSP officially began in April 1986 and is designed to eventually include all municipal water supplies in Ontario. In 1992, 109 systems were being monitored. Water supply locations have been prioritized for surveillance based primarily on criteria such as population density, probability of contamination and geographical location.

An ongoing assessment of future monitoring requirements at each location will be made. Monitoring will continue at the initial locations at an appropriate level and further locations will be phased into the program as resources permit.

A major goal of the program is to collect valid water quality data in context with plant operational characteristics at the time of sampling. As soon as sufficient data have been accumulated and analyzed, both the frequency of sampling and the range of parameters may be adjusted accordingly.

Assessments are carried out at all locations prior to initial sampling, in order to acquire complete plant process and distribution system details and to designate (and retrofit if necessary) all sampling systems and locations. This ensures that the sampled water is a reflection of the water itself.

Samples are taken of raw (ambient water) and treated water at the treatment plant and of consumer's tap water in the distribution system. In order to determine possible effects of distribution on water quality, both standing and free flow water in old and new sections of the distribution system are sampled. Sampling is carried out by operational personnel who have been trained in applicable procedures.

Comprehensive standardized procedures and field test kits are supplied to sampling personnel. This ensures that samples are taken and handled according to standard protocols and that field testing will supply reliable data. All field and laboratory analyses are carried out using "approved documented procedures". Most laboratory analyses are carried out by the Ministry of Environment and Energy (MOEE), Laboratory Services Branch. Radionuclides are analyzed by the Ministry of Labour.

DATA REPORTING MECHANISM

When the analytical results are transferred from the MOEE laboratory into the DWSP system, printouts of the completed analyses are sent to the MOEE District Officer, the appropriate operational staff and are also retained by the DWSP unit.

PROGRAM INPUTS AND OUTPUTS

There are four major inputs and four major outputs in the program.

Program Input - Plant and Distribution System Description

The system description includes plant specific non-analytical information acquired through a questionnaire and an initial plant visit. During the initial assessment of the plant and distribution system, questionnaire content is verified and missing information added. It is intended that all data be kept current with scheduled annual updates.

The Plant and Distribution System Description consists of the following seven components:

1. PROCESS COMPONENT INVENTORY

All physical and chemical processes to which the water is subjected, from the intake pipe to the consumers' tap (where possible), are documented. These include: process type, general description of physical structures, material types, sizes, and retention time for each process within the plant. The processes may be as simple as transmission or as complex as carbon adsorption.

2. TREATMENT CHEMICALS

Chemicals used in the treatment processes, their function, application point, supplier and brand-name are recorded. Chemical dosages applied on the day of sampling are recorded in DWSP.

3. PROCESS CONTROL MEASUREMENTS

Documentation of in-plant monitoring of process parameters (eg. turbidity, chlorine residuals, pH, aluminum residuals) including methods used, monitoring locations and frequency is contained in this section. Except for the recorded Field Data, in-plant monitoring results are not retained in DWSP but are retained by the water treatment plant personnel.

4. DESIGN FLOW AND RETENTION TIME

Hydraulic capacity, designed and actual, is noted here. Retention time (the time that a block of water is retained in the plant) is also noted. Maximum, minimum and average flow, as well as a record of the flow rate on the day of sampling, are recorded in DWSP.

5. DISTRIBUTION SYSTEM DESCRIPTION

This area includes the storage and transmission characteristics of the distribution system after the water leaves the plant.

6. SAMPLING SYSTEM

Each plant is assessed for its adequacy in terms of the sampling of bacteriological, organic and inorganic parameters. Prime considerations in the assessment and design of the sampling system are:

- i/ the sample is an accurate representation of the actual water condition, eg. raw water has had no chemical treatment;
- ii/ the water being sampled is not being modified by the sampling system;
- iii/ the sample tap must be in a clean area of the plant, preferably a lab area; and
- iv/ the sample lines must be organically inert (no plastic, ideally stainless steel).

It is imperative that the sampled water be a reflection not of the sampling system but of the water itself.

The sampling system documentation includes: origin of the water; date sampling was initiated; size, length and material type (intake, discharge and tap); pump characteristics (model, type, capacity); and flow rate.

7. PERSONNEL

This section contains the names, addresses and phone numbers of current plant management and operational staff, distribution system management and operational staff, Medical Officer of Health and appropriate MOEE personnel associated with the plant.

Program Input - Field Data

The second major input to DWSP is field data. Field data is collected at the plant and from the distribution system sites on the day of sampling. Field data consists of general operating conditions and the results of testing for field parameters. General operating conditions include chemicals used, dosages, flow and retention time on the day of sampling, as well as, monthly maximum, minimum and average flows. Field parameters include turbidity, chlorine residuals (free, combined and total), temperature and pH. These parameters are analyzed according to standardized DWSP protocols to allow for interplant comparison.

Program Input - Laboratory Analytical Data

The third major input to DWSP is Laboratory Analytical Data. Samples gathered from the raw, treated and distribution sampling sites are analyzed for the presence of approximately 180 parameters at a frequency of two to twelve times per year. Sixty-five percent of the parameters are organic. Parameters measured may have health or aesthetic implications when present in drinking water. Many of the parameters may be used in the treatment process or may be treatment by-products. Due to the nature of certain analytical instruments, parameters may be measured in a "scan" producing some results for parameters that are not on the DWSP priority list, but which may be of interest. The majority of parameters are measured on a routine basis. Those that are technically more difficult and/or costly to analyze, however, are done less frequently. These include Specific Pesticides and Chlorophenols.

Although the parameter list is extensive, additional parameters with the potential to cause health or aesthetic related problems may be added provided reliable analytical and sampling methods exist.

All laboratory generated data is derived from standardized, documented analytical protocols. The analytical method is an integral part of the data and as methods change, notation will be made and comparison data documented.

Program Input - Parameter Reference Information

The fourth major input to DWSP is Parameter Reference Information. This is a catalogue of information for each substance analyzed on DWSP. It includes parameter name and aliases, physical and chemical properties, basic toxicology, world-wide health limits, treatment methods and uses. The Parameter Reference Information is computerized and can be accessed through the Query function of the DWSP database. An example is shown in figure 1.

Program Output - Query

All DWSP information is easily accessed through the Query function, therefore, anything from addresses of plant personnel to complete water quality information for a plant's water supply is instantly available. The DWSP computer system makes relatively complex inquiries manageable. A personal password allowing access into the DWSP query mode in all MOEE offices is being developed by the DWSP group.

Program Output - Action Alerts

Drinking Water quality in Ontario is evaluated against provincial objectives as outlined in the Ontario Drinking Water Objectives publication. Should the reported level of a substance in treated water exceed the Ontario Drinking Water Objective, an "Action Alert" requiring resampling and confirmation is issued. This assures that operational staff, health authorities and the public are notified as soon as possible of the confirmation of an exceedance and remedial action taken. This report supplies a history of the occurrence of past exceedances at the plant plus a historical summary on the parameter of concern.

In the absence of Ontario Drinking Water Objectives, guidelines/limits from other agencies are used. The Parameter Listing System, published by MOEE (ISBN 0-7729-4461-X), catalogues and keeps current guidelines for 650 parameters from agencies throughout the world. If these guidelines are exceeded, the results are flagged and evaluated by DWSP personnel. An "Action Alert" will be issued if warranted.

Program Output - Report Generation

Custom reports can be generated from DWSP to meet MOEE Regional needs and to respond to public requests.

Program Output - Annual Reports

It is the practice of DWSP to produce an annual report containing analytical data along with companion plant information.

FIG. 1

PARAMETER REFERENCE INFORMATION

NAME: BENZENE

CAS#: 71-43-2

MOLECULAR FORMULAE: C_6H_6

DETECTION LIMIT: (FOR METHOD POCODO) 0.05 μ g/L

SYNOMYS: BENZOL; BENZOLE; COAL NAPHTHA; CARBON OIL (27)
CYCLOHEXATRIENE (41)

CHARACTERISTICS: COLOURLESS TO LIGHT-YELLOW, MOBILE, NONPOLAR LIQUID, OF HIGHLY REFRACTIVE NATURE, AROMATIC ODOUR; VAPOURS BURN WITH SMOKING FLAME (30)

PROPERTIES: SOLUBILITY IN WATER: 1780-1800 mg/L AT 25°C (41)
THRESHOLD ODOUR: 0.5 - 10 PPM IN WATER
THRESHOLD TASTE: 0.5 mg/L IN WATER (39)
ENVIRONMENTAL FATE: MAY BIOACCUMULATE IN LIVING ORGANISMS AND APPEARS TO ACCUMULATE IN ANIMAL TISSUES THAT EXHIBIT A HIGH LIPID CONTENT OR REPRESENT MAJOR METABOLIC SITES, SUCH AS LIVER OR BRAIN; SMALL QUANTITIES EVAPORATE FROM SOILS OR ARE DEGRADED RATHER QUICKLY (80)

SOURCES: COMMERCIAL: PETROLEUM REFINING; SOLVENT RECOVERY; COAL TAR DISTILLATION (39); FOOD PROCESSING AND TANNING INDUSTRIES; COMBUSTION OF CAR EXHAUST.
ENVIRONMENTAL: POSSIBLE SOURCE IS RUNOFF.

USES: DETERGENTS; NYLON; INTERMEDIATE IN PRODUCTION OF OTHER COMPOUNDS, SUCH AS PESTICIDES; SOLVENT FOR EXTRACTION AND RECTIFICATION IN RUBBER INDUSTRY; DEGREASING AND CLEANSING AGENT; GASOLINE.

REMOVAL: THE FOLLOWING PROCESSES HAVE BEEN SUCCESSFUL IN REMOVING BENZENE FROM WASTEWATER: GAC ADSORPTION, PRECIPITATION WITH ALUM AND SUBSEQUENT REMOVAL VIA SEDIMENTATION, COAGULATION AND FLOCCULATION, SOLVENT EXTRACTION, OXIDATION

ADDITIONAL PROPERTIES: MOLECULAR WEIGHT: 78.12
MELTING POINT: 5.5°C (27)
BOILING POINT: 80.1°C (27)
SPECIFIC GRAVITY: 0.8790 AT 20°C (27)
VAPOUR PRESSURE: 100 MM AT 26.1°C (27)
HENRY'S LAW CONSTANT: 0.00555 ATM-M³/MOLE (41)
LOG OCT./WATER PARTITON COEFFICIENT: 1.95 TO 2.13 (39)
CARBON ADSORPTION: K=1.0; 1/N=1.6; R=0.97; PH=5.3 (41)
SEDIMENT/WATER PARTITION COEFFICIENT: NO DATA

DWSP SAMPLING GUIDELINE

i) Raw and Treated at Plant

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-220 mL plastic bottle with white seal on cap -do <u>not</u> rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO_3) (Caution: HNO_3 is corrosive)
Volatiles (duplicates) (OPOPUP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do <u>not</u> rinse bottle -fill bottle completely without bubbles
Organics (OWOC), (OWTRI)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top
Specific Pesticides (OWCP), (PEOP), (PECAR)	-as per Organics -three extra bottles must be filled
Polyaromatic hydrocarbons (OAPAHX)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top -add 25 drops of sodium thiosulphate
Cyanide (Treated only)	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops sodium hydroxide (NaOH) (Caution: NaOH is corrosive)
Mercury	-250 mL glass bottle -rinse bottle and cap three times -fill to top of label -add 20 drops each nitric acid (HNO_3) and potassium dichromate ($K_2Cr_2O_7$) (Caution: HNO_3 & $K_2Cr_2O_7$ are corrosive)

Phenols	-250 mL glass bottle -do <u>not</u> rinse bottle, preservative has been added -fill to top of label
Radionuclides (as scheduled)	-4 L plastic jug -do <u>not</u> rinse, carrier added -fill to 5 cm from top
Organic Characterization (GC/MS - once per year) (PBVOL), (PBEXT)	-1 L amber glass bottle; instructions as per organic -250 mL glass bottle -do <u>not</u> rinse bottle -fill completely without bubbles

Steps:

1. Let sampling water tap run for an adequate time to clear the sample line.
2. Record time of day on submission sheet.
3. Record temperature on submission sheet.
4. Fill up all bottles as per instructions.
5. Record chlorine residuals (free, combined and total for treated water only), turbidity and pH on submission sheet.
6. No smoking in area of sample location.

ii) Distribution Samples (standing water)

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO ₃) (Caution: HNO ₃ is corrosive)

Steps:

1. Record time of day on submission sheet.
2. Place bucket under tap and open cold water.
3. Fill to predetermined volume.
4. After mixing the water, record the temperature on the submission sheet.

5. Fill general chemistry and metals bottles.
6. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

iii) Distribution Samples (free flow)

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-250 mL plastic bottle with white seal on cap -do <u>not</u> rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid HNO ₃ (Caution: HNO ₃ is corrosive)
Volatiles (duplicate) (OPOPUP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do <u>not</u> rinse bottle, preservative has been added -fill bottle completely without bubbles
Organics (OWOC)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top
Polyaromatic Hydrocarbons (OAPAHX)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top -add 25 drops of sodium thiosulphate

Steps:

1. Record time of day on submission sheet.
2. Let cold water flow for five minutes.
3. Record temperature on submission sheet.
4. Fill all bottles as per instructions.
5. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

